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# In the Supreme Court of the United States.

OCTOBER TERM, 1901.

THE UNITED STATES, APPELLANT,	} No. 239.
<i>v.</i>	
THE RIO GRANDE DAM AND IRRIGATION Company et al.	

BRIEF FOR THE UNITED STATES.

## HISTORY OF THE CASE.

This case was commenced in the third district of New Mexico May 24, 1897. The purpose was to enjoin the defendants from constructing a reservoir dam across the Rio Grande at Elephant Butte, New Mexico, 120 miles above El Paso, Tex. The bill alleged that defendants would impair the navigability of the river by diverting and restraining its waters. (Rec., pp. 31-35 and 38-42.)

A permanent injunction was prayed for and a temporary one issued. (Rec., 35.)

The defendants pleaded and answered denying most of the material allegations in the bill. (Rec., 54-59.) They moved at once to dissolve the temporary injunction. (Rec., 60.) A hearing, continued on different dates and extending from May 26 till July 3, was had

before the district judge, who thereupon made an order dismissing plaintiff's bill and dissolving the temporary injunction. (Rec., 94-98.)

From this action an appeal was taken to the supreme court of the Territory. That court affirmed the judgment of the district court, and an appeal was prosecuted to this court. This court, on May 22, 1899, reversed the decree of the lower courts and remanded the case with instructions to set aside the decree of dismissal—

And to order an inquiry into the question whether the intended acts of the defendants in the construction of a dam and in appropriating the waters of the Rio Grande will substantially diminish the navigability of that stream within the limits of present navigation, and if so, to enter a decree restraining those acts to the extent that they will so diminish. (174 U. S., 690, 710.)

This order was never complied with, but, on the contrary, the district court ordered practically an immediate *trial* of the case, and it was pushed to a hearing without giving an opportunity for an inquiry such as was contemplated by this court in its mandate.

To make clear this statement the progress of the case will be carefully detailed. The mandate of this court was issued June 24, 1899, counsel for the Government at once bringing it to the attention of the supreme court of New Mexico. That court on July 14, 1899, remanded the case to the district court (Rec., 2). Thereupon, on August 5 the district court, upon motion of the defendants and in disregard of the mandate of this court, set the case down for final hearing

upon November 1 following (Rec., 2, 3). The time thus allowed for preparation was at a season of the year when business in that Territory is practically suspended, and preparation for trial could not be made, all of which was well known to the court (Rec., 4, 5, and 6). But every effort was made by counsel for the Government to comply with this order, and upon October 17, being the first day of the convening of the court, a motion was made for a continuance of the case until February 5, 1900. This motion was based upon an affidavit setting forth matters which were never questioned. It was shown that plaintiff's counsel had been instructed by the Attorney-General to expedite the case and had done so; that at that season of the year the weather was so hot as to render certain of the work impossible; that the scope of the inquiry called for the knowledge of men eminent in the engineering profession, as well as much investigation of reports, etc.; that the facts must be collected from a wide extent of country, difficult of access, and that the order of this court could not be complied with within the time given. The extension of time asked for was a little more than four months, and it was even offered by counsel for the Government, if the time was so extended, that the case would be expedited by stipulation and otherwise, in case of appeal, so as not to delay its course in the appellate courts.

The court, upon that motion, refused to continue the case as asked, but did continue it until December 12 (Rec., 3-6), a period of only about forty days. By



such means the case was forced to a final hearing. The trial lasted from December 12 to the 21st, inclusive, when the case was taken under advisement. On January 2, 1900, the findings of the court were filed (Rec., 7-12).

On the trial of the case evidence was introduced by the Government tending to show that navigation had been good on the river as far north as Comargo, a distance of 6 miles above Rio Grande City, the present limit of navigation (Rec., 219); that about 1889 it had begun to decline (Rec., 215, 216); that about that time water began to be diverted in largely increased quantities in Colorado and New Mexico for irrigation purposes (Follett's Rep., Appendix); that it had receded so that the present limit of navigability was from Brownsville to Rio Grande City or Fort Ringgold, all in southwestern Texas, a distance by road of 110 and by stream of about 177 miles (Rec., 18); that by long observation the people who were accustomed to observe the river in connection with reports of floods from the tributary streams above, were able to distinguish the waters of the flood from the color assumed by the river below (Rec., 109, 136, 154, 246-248); that the main tributaries below El Paso were the Concho, the Pecos, Devils River, the San Juan, the Salado (Rec., 236, 327, 364-365); that there were others of lesser note, some of which are Mexican streams and some Texan; that the tributaries took rise in widely different localities, had each its characteristics, and were liable to be

in flood at very different seasons of the year (Rec., 329, 330-332); that the Rio Grande above El Paso was annually subject to floods, but was not an absolutely perennial stream, often going dry for months, but sometimes having floods twice a year, and occasionally floods of great magnitude at El Paso (see Harroun's tables and Follett's report, appendix); that the tendency of these floods was to spread out as the waters flowed down the river, the water occupying a longer time in passing a given point the farther down the river it would be observed; that the capacity of the proposed dam of defendants is 230,090 acre-feet (Finding XXIII); that cross sections of the river had been taken by the engineers of the United States and Mexico International Water Boundary Commission where the stream was navigable (Findings XX and XXI, Rec., 17); by computation it appeared for ten years immediately prior to the commencement of this suit enough water passed El Paso gauging station during the flood seasons to keep the river at good height for navigation for long periods; that the best state for navigation is about 2 feet 6 inches above the ordinary level of the river, at low water (Rec., 216-217), which by computation would require about 4,000 second-feet or 8,000 acre-feet per day, which would, in about thirty days, take water to the same extent as defendants' dam; that there had been years when the entire flow of the river at El Paso was not more than sufficient to fill said dam (Follett's tables, appendix); that in the extreme high year of 1897 it would only fill it five

times; that of water diverted for irrigation, very little ever returned to the stream, the same being exhausted by evaporation and seepage; that between El Paso and the mouth of the Conchos, for the most part, the river passed through a region practically unknown to living man, and the course of the stream had never been surveyed by the authorities of either Government; that very little was known also from the mouth of the Conchos to the mouth of the Pecos, the country being in the main wild and mountainous, and the river abounding in rocky canyons and dangerous rapids, which precluded the possibility of proofs as to the exact character and the loss by seepage; no measuring stations ever have been established below Fort Hancock, a few miles below El Paso (Rec., 351); that below the mouth of the Pecos the river is not favorable for the loss of water by seepage or overflow, (Rec., 331).

The records of the stations at Del Norte, San Marcial, Embudo, Rio Grande, and El Paso were also introduced so as to furnish a comparative loss or gain of water, from point to point, as far down as El Paso in New Mexico, where the course of the river was well known, and these indicated a high percentage of loss at times and a positive gain at others, accounted for by the varying conditions in different floods and seasons, as appears from summary hereafter to be given in tabulated form, and from the reports of Follett and Harroun in the appendix, and that very great quantities of water are constantly diverted and used in

Colorado and New Mexico, as appears from the same sources.

The opinions of a large number of witnesses, non-professional in the main, but experienced in navigation and observation of the river, were offered to the effect that such a diversion of water as was proposed could not fail to impair the navigability of the same where navigable. (Rec., 109, 119, 135, 155, 174, 193, 239.)

The defendants introduced testimony tending to show that the navigation of the stream, where navigable, was at that time very light and never had been great; that in places in Colorado, where water had been diverted for irrigation, there were evidences that very considerable, but unestimated or unmeasured quantities, had found its way back into the river; that a large portion of the water used in navigation came in below El Paso; that the impairment of navigation was because of the constant increase of aridity in eastern Mexico and southwestern Texas for many years past; that all along the course of the river the climate was very hot and dry and the evaporation great, and that the loss by seepage in the bed of the stream was considerable.

A large number of nonprofessional witnesses also testified that, in their opinion, the impounding of the waters by the defendants would not impair navigation. One witness was also produced by defendants who claimed that, as a hunter and trapper, he had gone from El Paso to the mouth of the Conchos in the early winter of 1893-94 in a skiff of his own manufacture, being

twenty-one days en route, a distance estimated to be about 400 miles, the stage of the water at El Paso being low, but sufficient for his boat through to his destination at the mouth of the Conchos. He described the course of the river as being through alternating valleys and canyons. (Rec., 479-495.)

The findings of fact speak for themselves, all being a part of the record.

After the trial of the case and the finding of facts had been filed, a motion for a rehearing was immediately filed, on the ground of newly discovered evidence which would tend to show that the water was not lost to a material extent between El Paso and the mouth of the Conchos River. It was proposed to show this fact by the testimony of three reliable witnesses who had actually navigated the stream between these two points at a comparatively recent period, which testimony was unknown to the Government at the trial of the case. Also upon the ground of surprise in the findings of the court, and to enable the Government to clear up the doubts of the court as expressed in his findings, by establishing stations at which to measure the flow of the water at various points between El Paso, the lowest then established measuring station, down the river to the head of navigation. This motion was also accompanied by an offer to so expedite the investigation and rehearing by stipulation as not to materially delay the progress of the case through the appellate courts in case of appeal.

This investigation would have been impossible in the time given by the court in the first instance on the

motion for a continuance for the final hearing. And so the motion for a rehearing and the early motion for a continuance by relation became practically combined. But the court held against the Government in both instances. Thereupon an appeal was taken to the supreme court of New Mexico, where the judgment of the district court was affirmed. To reverse the judgments of these courts this appeal is prosecuted in this court.

#### ARGUMENT.

The Rio Grande (Grand River), from its mouth, near Brownsville, Tex., for upward of 200 miles northerly, is perennial and navigable. It is probably perennial, or very nearly so, as far north as Eagle Pass, Tex. Above that point, for a considerable distance, it is some years perennial, but not every year. It is like most other large streams, in being aided by various tributaries at different points, the sources of which are widely separate from each other in distance, receiving the water from a vast extent of territory, in some portions of which the seasons may be unusually dry, while in other portions they may be only moderately so, or actually very wet.

At Presidio Del Norte it has been dry for some portions of the year; at El Paso, Tex., it has been practically dry for several months at a time during some of the years; the same is true as high up as Albuquerque, N. Mex.; and, indeed, from the statistics from the measuring stations, almost as far north as the Colorado line. It may therefore be said to be by

sections perennial and navigable, by other sections perennial, still other sections nearly perennial, and in still other sections torrential. Its length, which, according to the evidence in this case, can not be accurately given by the bed of the stream, is about 1,472 miles from its source to its mouth. The former is in the Rocky Mountains, just east of the Continental Divide, near Wagon Wheel Gap, in southern Colorado. From these mountains it receives much of its earlier torrential flow. Before reaching the New Mexico line it has seven tributary streams of sufficient importance to bear names, which receive the product of the melting snows as well as the rains from the various ranges of mountains, which are spurs of the Rockies under different names. It undoubtedly has many smaller tributaries, not different in kind, but varying in degree of flow; that is, they are torrential streams, at times of considerable importance, but at other times merely dry gulches.

These seven streams are the La Jara, Alamosa, Conejos, and San Antonio from the west, and the Trinchera, Culebra, and Costella from the east. But the largest northern auxiliary is the Chama, which comes in from the west in northern New Mexico, not far from the Colorado line.

The snow fall is usually very great in these mountains of Colorado and northern New Mexico, and they are also subject to tremendous rains of short duration, and thus sunshine and shower alike serve to bring down these streams into the Rio Grande at certain

seasons, commencing in the very early springtime and again in the late autumn, after what might be termed the fall rains.

These, and other tributaries farther down, together with local streams, serve for many months of the year to make the Rio Grande a noble stream, while at times, at points all the way north from Eagle Pass, Tex., it will be found with almost a dry bed. South from El Paso it has several important tributaries, the first being the Couchos, which comes in from Mexico at a place called Presidio, in the county of the same name, in Texas, the village on the Mexican side immediately opposite being Ojinaja.

The next is the Pecos, a stream taking its rise in eastern New Mexico and flowing for a long distance almost parallel with the Rio Grande, until far down in Texas it takes a westerly turn and empties into the Rio Grande. Below this, from different sides, are the Devils River, San Juan, Salado, and other minor streams.

Every one of these various tributaries adds something to the volume of the stream below, where it is navigable. If it is dry in one part of the country it may be wet in another, and thus, as in the case of almost any other long stream, the river is maintained by the composite waters of many streams. It certainly drains a long and wide extent of territory, embracing portions of Colorado, New Mexico, western Texas, and eastern Mexico.



## LOSSES.

While the Rio Grande in the respects just mentioned is like most other streams, it has some features not common to all large ones. For instance, it is subject to the influence of a particularly dry and hot climate, which undoubtedly takes much of its water by Evaporation. It also passes, a portion of its way, over a river bed composed of alluvial deposits, and thus loses by what is termed Seepage. In certain portions of its route it also runs through broad, level valleys, where it has low banks and where in times of flood considerable quantities are lost by Overflow. It also loses in Colorado and Mexico, in a strictly artificial way, large quantities of water which is diverted for Irrigation. These four peculiarities of the stream are at the outset worthy of careful attention as being strictly applicable to this case.

## EVAPORATION.

So far as the evidence in this case goes, there is nothing to show the amount of loss to the Rio Grande by evaporation. It is undoubtedly true that there is some difference in the intensity of the heat in different portions of the territory it traverses. Probably the heat is greater in degree below El Paso, toward the Gulf, than in the mountains of southern New Mexico and southern Colorado. Without doubt greater quantities of water are lost to the stream by this process where it broadens out, is without shade, and subjected to the winds which sweep across the arid plains, as is true, notably, of southern New Mexico.

Again, as the territory southerly from El Paso, on the way to the Gulf, in a very large degree is mountainous, where the river passes through deep gorges and canyons, and where it even cuts its way deeply through the plains, and the river bed is thus shaded from the rays of the sun and protected from the winds, it is doubtful whether the greater heat of the region is not counteracted by these circumstances.

We think from a study of the record, although no testimony bearing upon the point was offered, and at best if any had been offered it could only have been matter of opinion, that the court may infer that as great a volume of water is lost by evaporation in that portion of the stream northerly from El Paso as that portion which lies southerly.

#### SEEPAGE.

The next very important and perhaps the most important subject in connection with the river's losses is seepage. The evidence, as well as all circumstances in the case, show that next to irrigation seepage cuts the most important figure. The alluvial deposits in certain portions of the bed of this stream, composed of silt brought down the river for periods beyond history, may well be considered. Perhaps the nature of this alluvial deposit is peculiar to quite an extent, but the evidence in the case, without taking its formative parts under scientific consideration, indicates that in certain portions of the stream when the river runs dry, cracks in the bed are formed under the influence of the sun's heat and the drought common to that region.

These cracks must be filled up; in other words, the dry bed of the river must be saturated—filled with water—before the flood coming downstream after a period of drought will proceed onward. Undoubtedly the amount thus lost varies with different seasons, and sometimes the amount of water reaching the lowest measuring station at El Paso would show a much larger proportion of loss by seepage during a low flood, or, more properly speaking, a light flood, than during a heavier or greater flood. In other words, it would require but little more loss to satisfy the demands of seepage with a strong flood than with a light one, and thus the percentage of loss by seepage during a high flood and that during a low or light one might be very different. This subject is exceedingly interesting, as bearing upon one of the most important phases for consideration in this case, namely, Finding VII. But this seepage is by no means continuous, so far as the bed of the stream is concerned. Wherever the waters pass through a mountainous region, where, by its action for ages, its way has been worn through solid rock, wherever it has a gravelly bottom, indicating that no silt has been deposited, there the loss by seepage would necessarily be very light, if, indeed, there is any whatever. On the other hand, wherever the water passes over a bed favorable for a deposit of this silt, and such deposit is indicated by the cracking open of the earth when the bed becomes dry, there the loss would be increased, perhaps, to the extent of the depth of the alluvial

depo t. As in the case of evaporation, no estimate in the amount of loss has been even attempted by the men most learned in the affairs of this great river, the witnesses, Harroun and Follett. The time may come when it will be possible, by scientific investigation, to determine, in a proximate way, the loss of water by these causes in different years, but never to average them year by year for an extended period.

#### OVERFLOW.

The next subject for consideration in connection with these losses is that of overflow. Undoubtedly in years of great floods there is more loss from overflow than in any other way unless it be irrigation. During the years of light floods it perhaps cuts very little figure, as the water is usually held well within the river banks, and is only subject to losses from the other three causes. But in years of such tremendous floods as those of 1891 and 1897 a careful study of this case indicates to our mind a greater loss by overflow and its immediate consequences, evaporation and seepage, than from any other source whatever. This is especially true of the region where the river passes through broad, level valleys, with occasional depressions on these plains, and where the soil, as is true of all that locality, in those valleys is composed of what is termed adobe. This is particularly the case, as appears from the consensus of the testimony in this case, throughout lower New Mexico—that is, from the measuring station known as Rio Grande to El

Paso, Tex. It is a well-known fact, reenforced by the evidence in this case, that the soil of that region immediately underlying the surface is composed of this material called adobe, which, when slightly moistened and cut into blocks or squares and then dried for a very short time in the sun, is used in constructing large buildings sometimes of considerable height. Indeed, it is the most ordinary material for such construction. In making the irrigating ditches, being thrown up on the side, it becomes almost as impervious to the water as would a cement wall. A basin of it scooped out anywhere upon the plain will hold water until the same is dissipated by evaporation, a very small portion of it only being lost by seepage. When these great floods come tearing down the river, where its banks are low, and where for miles the plain is as low as the banks and in some places very much lower, forming a natural basin for the accumulation of water, the overflow, like irrigation, simply spreads the water over the plain, much of it never to return again. To the traveler by rail or any other conveyance through this region along this stream evidence of such basins and of the presence of water until the same was dissipated in some form other than a return to the stream, are apparent on every hand and sometimes for long distances from the immediate shores. There is evidence of one witness, and a very intelligent one, showing that in the lower Rio Grande in Mexico, during one year, the overflow reached a distance of 40 miles into the interior, more or less of the water remaining for a long period of time until it was finally

evaporated. While this would not probably be the case in southern New Mexico, in a season of high flood the difference should be one of degree and not of kind. This waste of water by overflow occurs after it has gone out onto the plain, by combination of evaporation and seepage.

#### IRRIGATION.

The fourth and, year by year, by far the most important method of impairing the waters of this stream is by irrigation. In the appendix to the record, the tables show the number of ditches and their carrying capacity, from the source of the river at the head of the San Luis Valley in Colorado, clear through to the bottom of the Messila Valley at El Paso, Tex., and they clearly indicate where the navigation of the stream in that portion of it formerly navigable has gone. This irrigation operates disastrously to navigation in two ways, perhaps of equal extent. One is the use and the other the abuse of water for this highly beneficial purpose—that is, beneficial to some interests. Measurements of the loss through the use of this water have been made, and they figure to an enormous extent every year, whether the water be high or low. They tell in language heavy with argument of the disaster to Mexico and Texas in their irrigating interests, and to all parties to whom navigation might be important. It is the fact, well known to history, that in both the Mexican war and during the expedition of General Sheridan at the time of

the Maximilian affair just after our own civil war, that enormous quantities of supplies as well as great movement of troops were made upon this river where it is navigable, and the undisputed evidence in this case shows that such navigation was important and considerable down until the time its possibility was decreased by the uprising of the irrigation interests in Colorado and New Mexico. The use of this water for irrigating purposes simply amounts to hundreds of thousands of acre-feet annually, it being shown by the evidence in the case that there was required in the Messila Valley, lying between Elephant Butte and El Paso, 1,000 second-feet, equal to 2,000 acre-feet in each twenty-four hours, for a period of one hundred days; in other words, 200,000 acre-feet. In San Luis Valley, in Colorado, the use was shown from 350,000 to 500,000 acre-feet annually. It will be seen from this what vast quantities of water are being diverted for actual uses of irrigation. In the seasons of plentiful water the abuse is well known, and although the authorities have passed statutes with severe penalties for such abuse, the waste is a matter of common knowledge everywhere. When water is scarce there is reason to be watchful, but when it is commonly understood that there is plenty of water for irrigation, little attempt is made to punish the carelessness or laziness of those who forget to close their gates and thus allow great quantities of water to be lost upon uncultivated lands lying below them, which water might tend to assist navigation if it could ever reach the navigable point.

It must be understood also that there is another peculiarity of the stream throughout all its length, which has a tendency to baffle strict mathematical calculation as to the manner of its flow. For instance, where it passes through these broad valleys there are gulches cut out by torrential flow, extending back from the river bed into the valleys as well as mountains to a greater or less distance. In the main, these gulches, or arroyas, as they are termed, are dry, and when a flood comes down the river, if it happens to be a dry season where they are, water, to a large extent, is forced back into them and remains there subject to seepage and evaporation, but also subject to return to the river in part when the lowering stage naturally brings about such return. The storage capacity of those arroyas, particularly in the level valleys, is very considerable. Where there are canyons or gulches in the mountains, seepage is not probable, but there is undoubtedly some evaporation.

Between El Paso and the mouth of the Concho, at Presidio, Tex., with the exception of slight use in El Paso Valley, hardly worthy to mention, there is practically no irrigation, or diversion of water, for agriculture, mining, or manufacturing purposes, for the country is practically unknown and largely mountainous.

Neither is the water below Presidio made use of to any considerable extent for any of the purposes last named or for any other purpose.



## THE WATER TABLE.

Experienced hydrographers have formulated and practically decided upon a condition to be taken into consideration in the flow of streams which they denominate the Water Table. In the case of the Rio Grande, and particularly in its nature as applicable to the circumstances of this cause, the Water Table becomes most important. It may not be possible to here give an exact definition of it, but as applied to this case it may be easily described.

Wherever the bed of a stream becomes dry and porous or cracked open, if the bed is composed of alluvial deposit, wherever there have been holes or depressions scoured out and left—in short, wherever there are places in which water flowing down stream would be arrested before flowing onward—sufficient water to fill those places must first be supplied. When this has been accomplished there is what is termed a “Water Table” formed—that is, the rest of the water coming down will pass over the surface of this Water Table so secured as over any other slightly inclined but otherwise level surface. From this fact, wherever the stream begins to be perennial there is a Water Table, and most of the water then flowing downward, and not lost by evaporation, overflow, or irrigation, is clear gain, and will pass down the stream with but slight further diminution. It will thus be seen that wherever the Rio Grande is perennial a Water Table is established. As far as it may be perennial for a whole year, it is established for that year. Without further

explanation for the present, this subject need not be discussed. That it should cut an important figure in the consideration of the case, as it would in the study of a stream entered upon by any hydrographer, may be readily understood.

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The foregoing statements, while somewhat general in terms and directed at no one particular point under discussion in this case, are all of them pertinent to points which are embraced in the assignments of error, and every one of them supported by the evidence in this case.

#### DEFENDANT'S PURPOSE.

As stated, a large portion of the waters of this noble stream since 1888 have been used and some of them wasted in and about irrigation in Colorado and New Mexico. The extent was such as to largely impair the navigation of the river where it has been navigable. These defendants, a party of men of means, mostly residing in England, desire to appropriate the remaining portion, impound them, control all the irrigable lands below them, and sell them at a profit to those who had theretofore enjoyed them without money and without price. At the beginning of this cause it was, and still is, the fundamental question in this case whether they shall be allowed to do so.

The prospectus of this company filed with the bill, and now a part of the evidence in the case, indicates that it is not only the purpose of this company to control all the remaining flow of the river, but to freeze

out all the farmers in the Mesilla Valley below Elephant Butte, as appears from the following extract from that document (record, 47):

The completion of the company's systems of canals will bring 230,000 acres of valley lands under ditch, and by the construction of the high-level canal about 300,000 acres of magnificent mesa (low-lying table-lands) can be irrigated. (Vide engineer's report.)

The amount of fertile alluvial lands capable of being irrigated by the company's canals when completed is only limited by the flow of the Rio Grande, which is one of the largest of the American rivers. Though the greatest flow of the river occurs during the months of April, May, June, and July, just when the orchards and vineyards most require irrigation, the storage of water is necessitated because the minimum flow of the river generally occurs about the end of the cropping season, when some irrigation is still requisite, and because an adequate supply of water must also be insured for irrigation in the early spring when the river is low.

The vendor company has secured, under United States Federal law, the only feasible reservoir site on the Rio Grande, in southern New Mexico, and the completion of the storage dam at Elephant Butte will create the largest artificial lake in the world (11,036,722,000 cubic feet), at a cost of 4s. 9d. per acre-foot (capacity), as compared with the cost of the Sweetwater dam (California), £8 10s. 5d. per acre-foot; the Merced Valley dam (California),

£5 10s. 10d.; Castlewood dam (Colorado), £7 10s. 4d. per acre-foot. (Vide the engineer's report.)

In acquiring this splendid reservoir site the company will obtain control of the entire flow of the Rio Grande in southern New Mexico, the only practicable means of irrigating what is now considered to be the finest fruit and vine country in the United States.

In controlling the water the company will, to a great extent, control the irrigable lands.

Many of the owners of irrigable lands in the valley have already contracted to convey to the vendor company one half of their lands in return for water rights to the other half and to pay a water rent of \$1.50 (6s.) per acre per annum for every acre of their land irrigated. A water right is the perpetual right to the use of water for irrigation purposes, at a fixed annual rental per acre irrigated, and is inalienable from the land to which the water right pertains.

Obviously the remaining landowners must, in order to render their properties of value, concede a large portion of their lands for water rights, or purchase the said water rights, at the ruling rates, from the company.

But this is not all. They proposed to hold up the prosperous cities of Las Cruces, N. Mex., and El Paso, Tex., as appears from this further extract (record, 48):

The revenue of the company will be derived principally from the sale of lands and water rights, from water rents, from the supplying of water to cities and towns for domestic and

municipal purposes and for milling and mechanical power, for which there is a large and constantly increasing demand.

They sought to modify the effect of this in their answer by means of the following paragraph (record, 57, 58):

Second. These defendants admit that the original defendant, The Rio Grande Dam and Irrigation Company, has entered into a contract and agreement for a conveyance to its codefendant of some of its rights in and to its said dams, reservoirs, canals, ditches, and pipe lines to be constructed, as charged in the bill of complaint herein, and that said defendant, The Rio Grande Irrigation and Land Company, Limited, has claimed and is claiming the right to exercise all of the privileges and rights by it secured by virtue of said contract, as aforesaid, but in so far as that portion of said bill is concerned which charges that The Rio Grande Irrigation and Land Company, Limited, is seeking to obtain control of the entire flow of said Rio Grande, and to divert and use the same, these defendants state that the entire flow of the Rio Grande during the irrigation season at the point or points where these defendants are seeking to construct reservoirs upon the same has long since been diverted and is now owned and beneficially used by parties other than these defendants, in which diversion and appropriation of said waters these defendants have no property rights, and that neither one of the defendants are seeking or have ever sought to appropriate or divert, by means of structures above referred

to, or contemplated diverting by means thereof, any of the waters of said Rio Grande usually flowing in the bed thereof during the time when the same are usually put to beneficial use by those who have heretofore diverted the same; but, on the contrary, these defendants state that it has been their intention, and their sole intention, by means of the structures which they contemplate and which are complained of in said bill, to store, control, divert, and use only such of the waters of said stream as are not legally diverted, appropriated, used, and owned by others, and that these defendants have contemplated and now contemplate that any beneficial rights by them acquired in such stream by virtue of such structures will be very largely only so acquired to the excess storm and flood waters thereof now unappropriated, useless, and which go to waste.

If the prospectus statements are true, this paragraph of the answer is false, and vice versa; but in either events, whether their purposes are cruel to the verge of villainy or generally beneficial to agriculture in the Mesilla Valley, the effect upon navigation is the same, and their designs against the natural water supply of the above-mentioned cities and also the large town of Juarez, opposite El Paso, in Mexico, are harsh and unconscionable.

#### I.

The first subject we desire to bring particularly to the attention of this court is the action of the trial court, approved by the supreme court of New Mexico,

in disregarding the terms of the mandate of this court concerning an "inquiry," refusing such time for the preparation of the case as was absolutely essential, and forcing the case to an immediate hearing. Again, in finding, in effect, that water in the river at one point had not been shown to have actually reached another point down the river by definite proof—evidence that was not possible without a reconnoissance of the river where it was unknown, and without measurements of its flow where at that time such flow had not been measured. Again, in finding that satisfactory evidence *had not been* produced of such continuous flow, and when the same *had been* discovered as to the part which was susceptible of immediate proof, and was offered to be procured as to that which did not exist, in refusing to grant a rehearing when such rehearing would alone make good the mandates of this court for an inquiry.

This topic embraces the mandate of this court after the first trial; the motion for a continuance, with supporting affidavit; the order of the court thereon; the findings of the court numbered XXVII, XXIX, and XXX; the motion for a rehearing, with supporting affidavits; the order of the court thereon, and assignments of error XI, XII, and XIII.

The questions of law had been practically settled by this court when it rendered its former decision. It had held the stream to be navigable, which placed its waters within the exclusive control of the United States Government where it was within the confines of this

country, and the joint control of the United States and Mexico where it was a boundary between us and that Republic. Its waters were not, therefore, subject to the disposal of the local governments of Colorado, New Mexico, or Texas.

But the hearing before the Federal courts of New Mexico on the motion to dissolve the temporary injunction had not placed before either of the courts definite and satisfactory evidence as to whether the proposed dam and reservoir of defendants would impair navigation.

A mere short, sharp trial of this case, after the manner of a suit at law, was not what was needed to decide these important questions, but an *investigation*—an *inquiry*—what the engineers term a *study* of the stream, to the end that these very important questions might be known and the courts enabled to act upon them understandingly. There has been no such thing—except in part—the part that *has* occurred stopping far short of any satisfactory point. Whether this has been caused merely by a lack of comprehension of the wishes, intentions, and instructions of this court, or from a determined purpose not to permit such a definite and satisfactory result, cuts very little figure in the result that has been reached, viz, a *partial inquiry*, and an appeal to this court for the opportunity denied below, to make the same complete and satisfactory.

That this may be made plain, let us analyze the situation.



Again, referring to the mandate of this court, we see that its purpose was—

To order an inquiry into the question whether the intended acts of the defendants in the construction of a dam and in appropriating the water of the Rio Grande will substantially diminish the navigability of that stream within the limits of the present navigation; and if so, to enter a decree restraining these acts to the extent they will so diminish.

It will be recalled that this order was made on the 22d of May.

That the case was regarded as important by the Attorney-General of the United States is shown in that he immediately placed it in charge of counsel specially selected for that purpose, as may be seen from the affidavit in support of the motion for continuance. (Rec., 4.) That such counsel moved in the matter at once, and moved energetically, appears from the portion of said affidavits to be found on the same page, from which we quote as follows:

Affiant further says that he immediately obtained files and correspondence of the Department of Justice relating to said cause, and after reading the same in as thorough manner as possible, he conferred with other officers of the Department, and particularly with the Solicitor-General's Office, and procured directions to be issued to the clerk of the Supreme Court of the United States, tending to have the case remanded to the supreme court of the Territory of New Mexico; and further asked that the United States

attorney for the district of New Mexico be requested to take earliest possible steps to have the cause remanded from the supreme court of the Territory of New Mexico to this honorable court (meaning the district court); that he is informed by the United States attorney, and verily believes, that he received such directions as hereinbefore mentioned, and in accordance therewith used the telegraph to procure the supreme court of the Territory of New Mexico to remand the cause of this honorable court before its adjournment; and that this affiant believes that by such directions so given or caused to be given by him that the ordinary course of proceedings before mentioned to return to this honorable court (the district court), the said cause was expedited a very considerable period of time, probably several months; that the course of this affiant in such respect was in accordance with the general orders orally given to him by the Attorney-General of the United States when said cause was so intrusted to him, which were in terms substantially this: That he should lose no time in the preparation and trial of this cause, and that he should give it right of way above any and all other business intrusted to him.

It will appear that the mandate of the supreme court of the Territory of New Mexico was filed on the 15th day of July, 1899 (Rec., 1), and that on the 5th day of August, only twenty days after, on the application of the defendants, the case was ordered to hearing on the 1st day of November (Rec., pp. 2 and 3).

When this court decided the case, the latter part of May, the important part of the floods of that year had passed already.

The case did not reach the supreme court of New Mexico till July 3, and in pursuance of the orders of the Attorney-General the telegraph was used to expedite its course and get it from the supreme court of New Mexico to the district court before the former adjourned, which made a saving of many months. The hot season was then on, when all classes of business men flee to the mountains from the region that was involved in this inquiry. But every effort was put forth by way of preparation on the part of the Government to meet the requirements of the situation. Engineers had to be found and consulted with in various parts of the land; official reports had to be procured from various sources, and examined; literature bearing upon the case had to be found and perused; testimony had to be looked up in far-distant and, at that season, practically inaccessible regions; men had to be interviewed who rarely, and in some instances never, used the English language, and all their adverse tendencies and suspicion of strangers upon a strange quest had to be overcome; data had to be procured from the region bordering the upper half of this river, where adverse interests rendered the inhabitants averse to its procurement, if not absolutely hostile; and it was found, after all, that much of the territory through which the river held its course was unknown, no one

being found who could testify concerning it. Yet the court, as early as the middle of August, ordered a trial of this case to be commenced on November 1. This necessitated the unpleasant duty of asking for this continuance. All the facts and circumstances sufficient to apprise any court of the true nature of the situation were set out in the before-mentioned affidavit, which was not disputed in any particular.

At the earliest sitting of the court thereafter, viz, October 12, this motion for a continuance of the case was made by the United States. The following paragraph contains the remaining causes, not above quoted, for said motion:

The said plaintiffs have been and are unable to collect and present to this honorable court the necessary and proper evidence and oral testimony from witnesses for a proper presentation of the plaintiff's side of this cause, notwithstanding having used due diligence to that end, all of which will more fully appear from the affidavit hereto attached and made a part of this motion in support thereof and to which the court is respectfully referred.

And in order that no possible reason to suspect the good faith of the Government in making this application should occur the following was made a part of said motion:

The plaintiffs, as a condition for the extension of time for the taking of testimony for the trial of said cause have offered and hereby offer to enter into any proper and reasonable

stipulation to enable the supreme court of the Territory of New Mexico to take jurisdiction of any appeal which may be taken by either party at its ensuing January term, and dispose of the cause during said term or at any adjourned session of the same.

Of course, it must be here understood that the January term of the supreme court of New Mexico would begin January, 1900, and last until December of that year.

That the court might be thoroughly and fully advised of the character of the case, and the extreme difficulty that had been encountered, and of the diligence that had been used, as well as all that must be encountered in the further preparation for trial, we will venture to quote the remainder of this affidavit:

This affiant further says that the magnitude and importance of this cause, in the opinion of the Attorney-General, as expressed to affiant, and in his own opinion, was such as to require a careful examination of the subject-matter therein involved, as well in the reports of the various departments of the Government bearing thereon, as by personal interviews with men of actual knowledge of the facts and others eminent in the profession of engineering, and that for such reasons he at once began to give his time and attention to the preparation of the cause for trial, even working out of hours during the heated season and without taking the usual summer vacation allowed in the Department of Justice; that he visited various leading cities of the United States for the purpose of

having interviews with eminent professional men presumed to have opinions of value in respect to the subject-matter of the cause, and corresponded, in the name of the Attorney-General and personally, quite extensively with men in different parts of the country whom he was unable to see; that at the same time he was informed and advised by persons having a general acquaintance with the localities along the stream, and a better acquaintance than himself, that it would be difficult, if not injurious to his health to attempt, during the heated season of July and August, and perhaps early September, to visit portions of the Territory in which it seemed important to make investigations, but that during the early part of September he came to the Territory of New Mexico and there had an interview with the United States attorney for said district and with professional men having peculiar knowledge in respect to the merits of this cause, and was then compelled to return to Washington without further action within the Territory; that to the best of his ability to judge he has spared no time or effort which might be reasonably and properly directed to the preparation of this cause for trial at the earliest possible opportunity; that he has procured the services of another assistant, who for many years has been acquainted along the lower part of said river and who speaks the Spanish language fluently, to aid him in procuring the necessary testimony and evidence to present to this honorable court upon the trial of said

cause; that he has taken pains to arrange with different parties for stenographic and other assistance, if the same should be necessary, and, in short, done everything that he has been advised and has, in accordance with such advice, believed to be necessary and proper for the preparation of said cause for trial at the earliest reasonable opportunity; but that he has become fully satisfied and verily believes, and so represents to this honorable court, that it would be an impossibility to properly and reasonably present to said court the plaintiffs' case within the time limited by the rules and practice of the court and set down for trial aforesaid.

Affiant further says that it will be necessary, and it is the intention of said plaintiffs to present, as far as possible, witnesses who shall testify in open court from various localities, but that there will be a considerable number of witnesses whose attendance in open court can not be procured under the rules and practice of the court, but whose depositions must be obtained to read upon such trial; that so far as he is advised and verily believes they reside in several different States, and some of them reside within the adjoining Republic of Mexico; that in his judgment, in properly procuring the necessary testimony of such parties, and in procuring and compiling for presentation to this court documentary evidence, it is necessary that there should be a considerable extension of time for the trial of said cause, and that this is particularly true from the fact that the history of the Rio Grande River, as far as possible, from its mouth to its source, back for a period of

many years, involving its navigation for commerce, as well as its use for the purpose of irrigation, must be prepared and furnished to this honorable court, and in addition to its history, the general size, capacity, and condition of said river for the same general period must be shown to the court, and that upon hypothetical questions, the foundations for which testimony and evidence shall first be taken, expert witnesses will be asked upon the part of the Government to testify as to their opinions, and that this will involve an unusual amount of labor, and consequently a considerable amount of time not common to ordinary cases; that, as before mentioned, this affiant is advised and verily believes that the case is of unusual magnitude and importance, not only as bearing upon the commerce and navigation of the Rio Grande River, but the irrigation along the same, and that the questions involved in this issue of fact, as applied to the decision pronounced in this cause by the Supreme Court of the United States, all tend to render the cause one of national importance, and the shortening of the time for the presentation of the case beyond such reasonable limit as will be just to both parties will work harm and injury rather than conserve the ends of justice.

But the court, instead of granting the motion for what then seemed to be a reasonable time, substantially granted only forty days, a period that was entirely inadequate for the purpose, and thereupon the counsel for the defendants claimed the benefit of the



offer that had been made in the motion as if a reasonable continuance had actually been granted. This offer was embodied in the stipulation to be found in the record, page 7, and the whole matter will serve to indicate the manner in which counsel for plaintiff were crowded upon every hand in their attempt to take part in this immediate inquiry.

In preparing for this trial enormous distances by stage-line mails had necessarily to be used in sending out notices for service and returning depositions of old men whose testimony could only be procured with the greatest difficulty, and, after the most diligent search, testimony such as the court, in the findings, held must be procured could not be found. Every facility which the Government could avail itself of was furnished and used to the extent of the endurance and strength of its counsel, and, as we submit, to great purpose in throwing light upon the case, but not to the extent required by this court, or satisfactory to the Government, simply because that court *would not* give a reasonable time.

On the trial of this case it was an important part of the theory of the defense that practically all the water in the Rio Grande was lost or wasted before it reached the mouth of the Conchos, and such, in substance and effect, seems to be the findings of the court.

The character of the stream was, to a slight extent, shown on the cross-examination of the witness McMahon, produced by the defendants; but so far as tracing the water year by year as it passed by El Paso

to the head of navigation, such a thing was simply impossible at that time, as it could only be done by the establishment of measuring stations at important points where the confluence of other streams with the Rio Grande occurred between El Paso and the head of navigation. Such measuring stations would have required considerable time in their establishment, with the service of skilled engineers in charge of them, and the waiting for floods to come down the Rio Grande and its tributaries. Up until that time and until after this suit was over neither the United States nor Mexico had taken any such measurements, the process of measuring streams, though in progress, being still then in its infancy; but after the court had substantially indicated in its Findings XXII, XXIX, and XXX that such a course must be pursued, the plaintiffs at once attempted to carry out the will of this court and its mandate by moving for a rehearing with a purpose of introducing newly discovered testimony tending to show the character of the stream between El Paso and the mouth of the Conchos to be entirely different from the theory of the defendants, or the findings of the court, and also by offering to establish a series of measuring stations all the way down to Rio Grande City, and to obtain the results of their measurements in time for a rehearing of the case to take place, so that the appeal, if necessary, might reach the supreme court of the Territory within the same term mentioned in the stipulation entered into on the motion for a continuance. That this matter may

be fully understood, and that the conditions which obtained in the Rio Grande from the time when the case was remanded, there having been no flood in the Rio Grande until the time of trial, and that these proposed measurements would fully answer the requirements of this court for an inquiry, and that all this might be done in such a way as to prevent any delay in case of the appeal to the supreme court of the Territory <sup>and</sup> of the United States, we desire to quote paragraphs V, VI, and VIII of that motion:

#### V.

The plaintiff, as a further ground for said rehearing, alleges that since the rendition of the opinion by the Supreme Court of the United States in this cause, remanding the same for a new trial, there have been no spring floods in the Rio Grande which could have been measured; that the plaintiff was compelled to proceed to trial without any opportunity to have such measurements made, and that if a rehearing is granted in this case the plaintiff will cause gauge stations to be established at a point in the Rio Grande some 10 miles above the mouth of the Concho; in the Rio Concho some 5 miles above its debouchere; in the Rio Grande some 2 miles below the junction of the Concho with the Rio Grande, and also one in the Rio Grande just above the mouth of the Pecos; one in the Pecos some distance above its mouth; one in Devils River, some distance above its mouth; one in the Rio Grande just below the debouchere of Devils River, and others at Eagle Pass, Laredo,

and Rio Grande City, Tex. And that cross sections will be made of the bed of the Rio Grande at some twenty or more places between El Paso and just below the mouth of the Rio Concho, and in the Rio Grande near the mouth of the Pecos, and at Eagle Pass and Laredo and such other points as the court may indicate. That at such gauge stations plaintiff will locate observers, who shall make accurate measurements of the volume and flood and capacity of the said streams, with a view of identifying any and all rises of water which during the coming spring floods shall pass El Paso, Tex ; to show their amount, volume, and flow at the various points named in the river below that point, and eventually the amount which they or each of them contribute to the navigable capacity of the river at Rio Grande City, Tex. And that said measurements and the reports of such observers, together with the cross sections previously mentioned, shall be supervised or done under the directions of W. W. Follett, the civil engineer connected with the United States and Mexican Boundary (water) Commission, and by him produced and identified at the time of said rehearing.

## VI.

As a condition for the granting of said rehearing the plaintiff consents to enter into a stipulation with the defendants that said cause may be reheard in the month of July or August, and if an appeal is desired by either party to the supreme court of the Territory that the same may be heard in said supreme court at such

adjourned term of the court as may be fixed by the court, and if any appeal from the decision of the court is desired by either party that the same will at once be taken so that it will be returnable to the ensuing October term of the Supreme Court of the United States.

### VIII.

The plaintiff further offers and consents to use the testimony already taken in a new trial or rehearing of this cause.

It will thus be seen that without any expense of time in the final settlement of the case and without going over all the ground which had already been traversed, the offer of the plaintiff would have fully met the requirements of this court and would have established beyond question all that this court required the trial court to ascertain as ground work for its action. We submit that there was neither common sense, justice, nor reason that can be conceived of why this course should not have been taken. It would not have been in derogation of any rule of legal procedure, it would have been no hardship whatever upon the defendants, and it would have saved a year and a half of time in all probability in coming back to this court for redress. And we claim that the refusal of the trial court, affirmed by the supreme court of New Mexico, was unjust, inequitable, and unreasonable, and against the fair intendment of the order of this court in remanding the case, and amounted to a plain abuse of the discretion reposed in trial courts, while the reasons assigned

for such refusal stated by the supreme court of New Mexico were technical and sophistical, if not absolutely frivolous.

In the main that supreme court adopted the findings of the trial court, but as to this motion for a rehearing they answered. Let us analyze their answer. They say (Rec., p. 649):

While it may be true, as stated in the findings of fact by the trial judge, that the flood waters of the Rio Grande passing El Paso, Tex., do to some extent and under some circumstances add to the navigable capacity of the Rio Grande at Rio Grande City, the head of the navigation, there is no evidence in this record from which a court can deduce what the effect may be, and consequently the appellant failed to establish its right to an injunction in this case. The burden of proof was upon the appellant. This was met by the appellant by showing that certain given quantities of water passed El Paso at certain periods specified, the natural presumption and result of which would be that it continued on down the course of the channel of the river. But this proof was met by the appellees by showing that the bed of the Rio Grande is of a porous character and capable of absorbing immense quantities of water; also, that immense quantities of water are lost by evaporation. This state of facts being made to appear, the appellant in this case was again compelled to assume the burden of showing that after these losses had taken place between El Paso and the head of navigation, there still remained a given quantity of

water which would effect certain results at the point of navigability. In this the appellant failed. In fact, so far as disclosed by this record, such evidence is not in existence, there having been at the time of the trial of this case no gauging stations or other means adequate to measure the flow of the stream occasioned by waters passing El Paso.

That court again makes manifest its wisdom and sagacity in passing directly upon the assignment of error, as to refusing a rehearing, in the following language (Rec., p. 649):

The application for a rehearing is based upon two propositions: (1) The discovery of new evidence between the time of the final submission of the cause to the court and the entry of the decree, and (2) an undertaking on the part of the Government to establish gauging stations along the Rio Grande below El Paso for the purpose of accurately measuring the flow of that stream, so as to furnish reliable evidence not furnished upon the trial.

The first proposition is supported by the affidavit of one Frank P. Clark, a resident of the city of El Paso, State of Texas, the affiant stating that in the spring of 1881 he, together with other persons, constructed in the city of El Paso a large rowboat, 20 feet long and 6 feet wide; that they placed therein supplies for a prospecting trip, and that Clark and his companions, three in number, embarked in said boat at or near the ferry across the said Rio Grande, between El Paso and Paso del Norte, Mexico, now called Juarez; that the Rio Grande was

not then at high-flood stage, but was flowing a good volume of water, ample for their purposes; that they made very quick time, and at the close of the fifth day, May 9, 1881, the party passed the mouth of the Conchos River; that the boat came the whole journey safely, having at all times on the way an ample supply of water, and that in the last stages the volume of water in the stream appeared to be even larger or deeper than when they left El Paso, Tex. No evidence or proposed evidence is submitted as to the flow of the river at El Paso subsequent to the departure of this party down the stream, whether the same remained stationary in height, as it was upon their departure; whether there was a pronounced rise or fall therein. Consequently this proof, if submitted, could have no effect on the judgment in this case.

As to the second proposition submitted in support of the application for a rehearing, it is a proposal not to produce evidence which already exists, but to create evidence not existing at the time of the trial of the application. We think no sufficient diligence has been shown by the Government in this case in regard to this evidence. From the time of the issuing of the mandate of the Supreme Court of the United States remanding this cause for this investigation, the Government took no steps whatever to furnish this evidence. It is not shown in the application why no such steps had been taken. Even during the trial of this case it must have been as much apparent to counsel for the Government that this testimony



was required to support the bill as it was after the findings of fact came from the trial judge. No mention of the same was made nor any application presented to the court at that time. Again, it is not shown by this application that the result of any such proposed investigation will change the conclusion reached in this case. The Government simply asks that this case be reopened for the purpose of permitting it to make an experiment which it should have made before that time, and the result of which no one undertakes to foretell. It is true that the question of fact involved is one of difficulty, and satisfactory evidence can be obtained only after extensive experiment; but the Government has seen fit to try the case without taking any precautions in this regard, and must be held to the consequences of its neglect. We know of no rule, taking into account even the great public importance of this case, which would authorize this court or the court below to reopen the case under the circumstances. .

The whole case of the defense—the whole argument of the court in its findings—as will hereafter be shown, was built up on the theory that practically all the water was lost before reaching the mouth of the Conchos. Here was proof to show the fallacy of such a conclusion, but the testimony was held to have no tendency to change the result.

As to the offer to establish gauging stations, and thus trace the water of the river and make the results of inquiry definite beyond peradventure, the court hides behind the pretense that it knows of no rule for the

continuance of a case to *make* evidence. What is an inquiry for? Hard and fast rules can hardly bound the limits of an investigation like this. If there was no rule *against* such a proceeding it was wise to adopt it, i. e., make a rule.

What reason could be given for denying this request? There was none assigned by the district court. There could be none urged within reason. Even in the ordinary case at law, newly discovered testimony of an important character, and having a strong bearing upon a material point, if clearly set forth, as in this case, is sufficient warrant for a new trial. But this was something more, and the magnitude of the interest at stake called for the inquiry to be complete, especially when the court, as in this case, rendered the Scotch verdict of "not proven." If definite and satisfactory evidence was wanted by the court, why not get it? The defendants can not satisfactorily answer this question.

But the supreme court of New Mexico say that from the date of the mandate no steps were taken to carry on such an investigation. What would be the utility of investigating a dry river? That court had before it the record, written all over with the history of the stream, and showing that all this time from its mandate of July 3 till the date of the trial was the dry season of the year. Common sense would apprise them of the fact. Their personal knowledge of a river whose course lay close by their court-room doors made it manifest; their personal travel on the Santa Fe Railroad indicated it by hundreds of miles of practically dry river bed, and then after saying that there

had been no gauging stations below El Paso, they proceed to say that it must have been apparent to counsel for the United States on the trial of the case that this proof was needed. Yes; but how was it to be procured? Did they mean that the exigencies of this case demanded on the one hand, or the circumstances of it permitted on the other, that over-night gauging stations be brought into being and action, with competent hydrographers in charge, at points varying from 250 to 1,200 miles away, and evidence of water's flow be wrung from a dry river? Could it be supposed in advance by any man accustomed to follow the law, and especially the law of evidence, what the supreme court of New Mexico would hold? They held, as did the district court, that they could shift the burden first on one side and then the other, but it did not seem to occur to them that the Government's counsel could not reach out over that wide extent of territory and be as shifty as they.

This court, however, cited certain authorities which they relied upon to sustain the position thus assumed. We have examined them. A diligent search for such a case as *Rogers v. Marshall* (3 Fed. Rep., 59) has been made through all the volumes of those reports without success, and we therefore assume that no such case could be found. In *Munson v. The Mayor, etc.* (11 Fed. Rep., 72) is found a case which depends upon the fact that the parties had a full and fair opportunity to investigate, try, and have the issue determined. It would be an authority if this court should take the view

that the case under consideration was like any ordinary issue at large, and that the mandate of this court for an inquiry was intended only as an order for a new trial, and that, under all the circumstances, the Government had an opportunity to prepare for the same. But unless it is determined that all these conditions were brought into combination the case is not analogous. *Pittsburg, etc., v. Cowles* (64 Fed. Rep., 125) is even less in point, for the reasons last above given, and also that the principal reason for the rehearing was deceiving sophistry of opposing counsel on the trial. Possibly the learned supreme court of New Mexico in giving reasons for its decision had not time to distinguish between sophistry of opposing counsel and manifest error and injustice on the part of a trial court. The case of *Burrows v. Ween* (25 Atlantic Rep., 890) seems to have alone in common with this case the single fact that it *was a case in equity*. There the question at issue was whether a certain kind of mineral, viz, sienna, was contained in the mine. A witness was introduced who testified that he did not find it in such mine. After full trial and argument the complaining side applied for a rehearing, alleging surprise that the witness should have so testified. The court properly held that, that being the real issue, they should not have been surprised. It seems singular, if the supreme court of New Mexico really examined the cases it cited, that it should have cited them.

But the view taken by that court of the burden of proof is also somewhat remarkable. In substance,

they say: That by proving the facts showing large quantities of water were in the river at El Paso, the burden of the Government was discharged. The appellees then proceeded to show that conditions were favorable to the loss of water by evaporation and seepage. Then the court assumes that the burden again shifted upon the Government to prove that enough remained to "effect certain results in navigation."

If the court was correct and the Government was in duty bound to know this, and was chargeable with such knowledge from the time when the suit was commenced, if this was a correct interpretation of the settled law, perhaps we have not so much cause to complain of the refusal of the court to allow us an opportunity to make such a showing. But, on the other hand, if the law was unsettled or in doubt concerning the burden of proof as applicable to the facts developed in this case, then we claim it would have been the duty of the court to have given us the opportunity. But we disagree with the learned court altogether upon the rules of evidence in this regard, and claim that while the court was correct in first assuming that the duty of the Government ceased when a large amount of water was shown to flow past El Paso sufficient in quantity not only to influence navigation, but furnish it; and that the burden then shifted to defendants because of our having established a *prima facie* case. But we say that the court then went wholly wrong, as did the trial court, in assuming that defendants did all they were in duty bound to do when they furnished

testimony tending to show that conditions were favorable to the loss of a large amount of water by seepage and evaporation. And we say that these courts were further in error in holding rather that the Government must show how much water was saved from the effects of these unfavorable conditions rather than that the defendants should show how much water was lost on account of the same. The doctrine of *prima facie* evidence has been well laid down by this court at an early date as being such as in judgment of law is sufficient to establish the fact; and if not rebutted, remains sufficient for the purpose. (*Kelley v. Jackson*, 6 Pet., 622; *United States v. Wiggins*, 14 Pet., 334.) A clear statement of the rule relative to the *burden of proof* is given by the supreme court of Massachusetts, as follows: "Where the party having the burden of proof gives competent *prima facie* evidence of the fact, and the adverse party, instead of producing proof, which would go to negative the same proposition of fact, proposes to show another, or a distinct proposition, which voids the effect of it, there the burden shifts and rests upon the party proposing to show the latter fact." (*Powers v. Russell*, 30 Mass., 69.) The same rule is substantially given by Mr. Wharton, in his work on Evidence, section 354; and this after a very careful and cautious discussion of the views of all the writers upon that subject. It will be seen that in this case defendants undertook to avoid the *prima facie* case made by the Government, by showing what might be termed disabilities or vicissitudes of the

climate and the soil, ordinarily known as evaporation and seepage. That the burden in so doing fell upon them is plain. A statement of the rule in such cases is given in *Dixon v. Niccolls* (39 Ill., 385) in this language: "Of facts of unvarying occurrence the courts must take judicial notice, but not of the vicissitudes of climate or seasons. These, like other facts, if relied on as important, must be proved by the party seeking to take an advantage therefrom." The water was there in large quantities at El Paso. It was a presumption of fact that it flowed downstream to a lower level. (Wharton on Evidence, sec. 1294; *Collins v. Middle Level Co.*, L. R., 4 C. P., 279.) We have shown by the cross sections given in Findings XX, XXI, that the water was in sufficient quantity to make navigation and there was no doubt about it as a *prima facie* case. And why, we ask, should the defendants be allowed to stop short with the mere showing that conditions were unfavorable for such water reaching the head of navigation? And why should the court hold that at this point we were in duty bound to accomplish that which was physically impossible?

But these courts were not acting upon their discretion in this matter. They were supposed to be acting in obedience to the mandate of this court, and they should have obeyed instructions rather than take advantage of strict rules applicable to ordinary cases at law.

## II.

The second important matter to be considered comprehends the action of the court in singling out one particular year of the comparative measurements at San Marcial and El Paso gauging stations indicating a loss of water to the extent of about 33 per cent in 165 miles. This embraces Findings VII, Subdivision C of XXVIII, and assignment of error I.

In this connection it is necessary to discuss the unfairness of the court in thus selecting this particular year and these particular stations from other years and a long line of stations.

Upon this finding hinges all the important and material findings of the court. It is, so to speak, the foundation upon which the court builds the case he makes. It being in the form of a garbled showing, it is mistaken and grossly misleading. It is not the effect of the evidence in the case, and it should be exhibited in its correct light. If this is done, the whole result as reached by the court will go with it.

When the court made that finding, literally correct, he had before him, in the evidence from which he took that particular statement, the most ample, conclusive, and convincing evidence to prove that it was not really the product of the evidence in the case, but was segregated therefrom and put forth, not merely in such a way as to have been unsupported by such evidence, but so as to be really contrary to the evidence. This evidence is to be found in the mass of tables printed as part of the Hydrographical Report, of Engineer Follett,



and in the repetition of portions of those tables as found in report of the Commission of Irrigation and Water Rights of New Mexico, which was the work of Hydrographical Engineer Harroun, both printed in the appendix to the record. These witnesses and their reports were the only source from which the court could obtain any basis whatever for this finding. Now, without any possibility of controversy, we assert that Mr. Harroun's summary from the report of the commission, which we herewith give verbatim, is the whole of those reports and testimony of said witnesses on that subject boiled down. It will be found on page 185 of the appendix to record, but for convenience we here again repeat it.

## SUMMARY.

Year.	Del Norte.	Gain or loss.	Embudo.	Gain or loss.	Rio Grande.	Gain or loss.	San Marcial.	Gain or loss.	El Paso.
		<i>Perct.</i>		<i>Perct.</i>		<i>Perct.</i>		<i>Perct.</i>	
1889..			747,070						
1890..	900,962	+18	-1,064,377					-8	963,415
1891..	1,014,126	+32	1,348,217					+42	1,926,203
1892..	590,219	+52	899,730					+3	984,122
1893..	516,886	+20	624,274						
1894..	597,440								
1895..	754,931	+17	885,279	+57	1,392,507				
1896..	641,017	-27	467,960	+47	698,072	-19	566,499		
1897..	946,757	+17	1,112,382	+71	1,909,060	+22	2,331,586	-41	1,360,374

From this summary it appears that as early as 1889 a gauging station was established at Embudo in northern New Mexico. That the next year others were put in at Del Norte and El Paso, and thus continued the next two years, 1891, 1892. In 1893 and 1894 the El Paso station was dropped out. In 1895 El Paso was still out, but to Del Norte, Embudo, a new station,

called Rio Grande, was added. In 1896, to Del Norte, Embudo, and Rio Grande, the new station of San Marcial was added, but El Paso was still out. In 1897, El Paso was taken in and there were then five stations. Now, referring to the table of distances in Finding XXII, it will be seen that Del Norte is 80 miles from the source of the stream; that from Del Norte to Embudo is 130 miles; from Embudo to San Marcial is 200 miles, and, lastly, from San Marcial to El Paso is 165. Let us analyze this summary by years. In 1890 there was a gain of 160,000 acre-feet between Del Norte and Embudo. This is natural, as the Chama and several smaller streams put in there during that 130 miles flow, but neither the Rio Grande nor the San Marcial stations were then established and in a flow of 365 miles from Embudo to El Paso there is a loss of 100,000 acre-feet, although there is no tributary stream worthy of bearing a name for the whole distance. But in the great flood year of 1891 we have a story which puts Finding VII to shame. The measurement at Del Norte was 1,000,000; Embudo, 1,350,000 in the flow of 130 miles; and at El Paso, in a flow of 365 miles, it was 1,925,000—a gain of 900,000 acre-feet in a flow of 500 miles from Del Norte, and nearly 600,000 in 365 miles from Embudo, including the region where Rio Grande and San Marcial stations were afterwards established. 1892 gives results which are not so pronounced against Finding VII, but are confirmatory in its condemnation. There was substantially 600,000 acre-feet at Del Norte, 900,000 at

Embudo, and 936,000 at El Paso. For the next four years there is no record at El Paso, but Del Norte and Embudo keep up substantially the same relation to each other as before, and we may therefore fairly presume that El Paso, as a whole, would have done the same, as Rio Grande, which was added the third year (1895), kept a relatively increased showing over Embudo; and in the fourth year (1896), when San Marcial was added, the result was not considerably changed. But the next year, 1897, brings the result which reverses everything and settles for the time being this case. Another great flood came—not so great as in 1891, but still great. Del Norte starts out with 950,000 acre-feet, Embudo has 1,100,000; Rio Grande, 1,900,000; San Marcial, 2,300,000, and El Paso only 1,350,000. If we had not been possessed of the figures of these previous years, this might have been a damaging, though by no means a decisive, circumstance. It might then have been well worthy of note for a court to *consider* in passing upon a case like this, but not to treat as the whole substructure as this court did. It may be observed here that this table shows a loss of 41 per cent between San Marcial and El Paso that year. But inasmuch as all the water required for irrigation in the Mesilla Valley, between San Marcial and El Paso, which was equal to 1,000 second-feet or 2,000 acre-feet per day for a period of one hundred days, or 200,000 acre-feet, which would have brought El Paso up to 1,550,000 acre-feet, the loss was thereby reduced to 32 or 33 per cent for that year.

But having examined the cold facts as they appear from this table, let us consider this apparent loss as light was let in upon it. 1897 was the second year of the operation of the San Marcial gauging station. The first year (1896) the flood was only ordinary at that point—566,000 acre-feet. This year of 1897 it was raised to four and a half times that amount. The man who took the gauge was only the station agent at a near-by station on the Santa Fe Railroad. (R., p. 355). The one witness (Follett) in this case who understood the river better than any other, and had worked upon and studied it for many years as the consulting engineer of the International Water Boundary Commission, who was the father of the gauging investigations upon it, and in personal control of the El Paso station; who was a hydrographical expert engineer of the highest grade, and whose character and testimony seemed to command the implicit confidence of both court and counsel, testified to his want of confidence in the San Marcial measurements for that year, and no witness attempted to dispute his testimony.

Just here it will be important to remember that at these measuring stations there is a difference between taking the gauge and taking a measurement. The taking of a gauge is merely measuring the height of the water in the river at some given point. At the San Marcial station a timber was put down to the bottom of the river at one of the abutments of the railroad bridge, its height being marked in feet and inches. In this way it was an easy matter to see at any time what

the gauge or height of the water was. But a measurement, as distinguished from a gauge, is taken by measuring the depth of the water, at intervals of 5 or 10 feet, clear across the river. By this means, if by the process of scouring out or filling up there has been any change in the actual bed of the stream, that fact may be known. While the gauge would only show the height of the water at the time it was taken, the measurement of the stream would show, in connection with the height of the water, how many second-feet were passing the measuring station. As will appear from the testimony, these gauges were taken at the San Marcial station, where the bed of the stream was composed of silt, by an inexperienced man, the agent of the railway company at that place, while the measurements at that station were taken by Mr. Harroun, and but two or three times during a month. It also appears from the evidence, on the other hand, that at the El Paso station, which was under the charge of Mr. Follett during that same year, measurements were taken every other day and gauge readings were taken two or three times each day. Thus, in 1897, according to the combined opinions of Messrs. Follett and Harroun, while the flow at the El Paso station was measured as correctly as it is possible to make measurements, the chances were that great error may have occurred at San Marcial. (Follett, Rec., 584; Harroun, Rec., 605.)

Again, Mr. Follett testified that the location of the San Marcial station was not favorable to correct measurements in a high flood; that the river came down

past the village of San Marcial and a short distance below struck squarely against a hill and swung to the west, and that a short distance below at the crossing of the river by the railway bridge the station was established; that this location was thus peculiarly favorable to eddies and cross currents and that the situation was such, in the time of flood, that there might be much less water actually passing down the stream than appeared from what we might term the arbitrary gaugings and measurements. (Rec., p. 585.)

Continuing, Mr. Follett testified that the season had been exceedingly dry, which fact would involve some loss by seepage; that the banks were low between San Marcial and El Paso (Rec., p. 361), which of course gave great opportunity for overflow into the adjacent valleys.

It may be added that no one attempted to dispute the testimony of Engineer Follett upon these points, while Engineer Harroun, the manager of the San Marcial station, admitted the correctness of Mr. Follett's conclusions (Rec., p. 605). And, as it was admitted by all that over 200,000 acre-feet was used for irrigation during that year between San Marcial and El Paso, we submit that the apparent great loss between these two points in that one year was fully and fairly explained upon entirely different principles than those sought to be deduced throughout the findings of the court, namely, that so large a percentage of loss was the usual and ordinary thing between these two points, and argued practically a loss of all the water

in the river before it could reach the head of navigation. All these facts were before the court and yet, singling out this one year and the territory between these two stations, he concluded, in Finding VII, that this amount of water was lost, and then proceeded from that to build up, in the series of findings which followed, a case for the defendants.

The question might properly arise just here, why the court made so much of this loss in 1897 between San Marcial and El Paso. While not instantly clear, it becomes apparent as soon as one gets a comprehensive view of the case. The water, in large quantities, large enough to affect navigation on any stream in the world, was found to be in the river at El Paso. That it flowed downstream from there was beyond question. The distance to Presidio, the mouth of the Conchos, is by the table 205 miles, but by the stream, estimated, 400 miles, and from Presidio to Rio Grande City is 560 miles, or, say, 1,000 miles by the stream.

Why, when there was opportunity for seepage and evaporation all that distance, was it so important to hang to that single circumstance? We answer, that it was necessary to lose all the water which passed El Paso before it reached the mouth of the Conchos. It must all be gotten rid of in that 205 miles. Why? Because in their zeal to show that all the water in the Rio Grande which was used for navigation came from the streams coming in below El Paso, they had converted by their witnesses the Conchos and Pecos into perennial streams; and if they were, they necessarily

formed a water table. And thus the defendants' counsel overreached themselves, not discovering their position till the case was closed as to proofs. If such a water table was there and kept up by the perennial flow of the Conchos and the Pecos, then all the water which reached the mouth of the Conchos from El Paso would be a plain addition to navigation below, except the comparatively slight amount lost by evaporation.

To a prudent court there was reason for caution; but instead he took this one item from a general summary and adopted it as his finding. It did not matter that this extract was the result of the labors of an inexperienced man, and that, in addition, the data was collected in a time of very high flood, under exceedingly difficult conditions. Nor did it seem to weigh with the court that all these weakening explanations by witnesses of well-known ability and experience had been made.

The last clause in Finding VII is a random shot and not supported by evidence in the case, but apparently thrown in to give the river a general bad character in New Mexico, so that it may more naturally appear to have one in Texas. As to evaporation, of course it may be said of that or any other arid region that it is constant and considerable. It would hardly be greater in one season than another, and the difference in it during a high or low stage of water would hardly be worth mentioning. But, above all, it would not be more rapid between El Paso and Presidio at the mouth of the



Concho than between San Marcial and El Paso. We submit from the evidence that the loss during 1897 must be accounted for in one or more of three ways, viz: Mistake in measurement at San Marcial, seepage and overflow classed together, and waste through irrigating ditches. And in any event we believe this court will conclude, as stated by Follett, that it was abnormal.

We have before had occasion to remark that upon this mere circumstance the court bases his findings. In Finding VIII he relies for his conclusion upon that circumstance. Finding IX is also in close relation. The same, not quite so distinctly, but still the same, is true of XI. The same is true of XVII, and it comes into bold relief in the final argument of the court in Finding XXVIII, where it is the principal feature in subdivisions 1, 2, 3, 4, and 6. Take out this circumstance and the case is clear for the United States, the only thing necessary being an answer to the question, How far would defendants' dam impair the navigation? and to that we submit that the trial court fully, though unintentionally, made answer, viz, to the extent their dam would impound a foot of water.

The water was there at El Paso. Evaporation would only exhaust a small portion of it. There was no irrigation. Their only resort was seepage.

But it was a rugged, mountainous country, and much of the bed was rocky or a gravelly bottom unfavorable to seepage, and here they were confronted by obstacles of a still more serious nature. They had discov-

ered a man who claimed to have ventured through this wild and practically unknown region from El Paso to Presidio. His name is McMahon. His testimony answered their purposes in certain particulars, but upon cross-examination, before the object was discovered, he had given testimony which rendered their object of losing the water impossible by any ordinary means. He testified (Rec., p. 512 et seq.) in substance that the passage down the stream was perfectly possible on a very low stage of water, only  $3\frac{1}{2}$  feet at El Paso and falling; that he took twenty-one days in going the 400 miles; that a large portion of the way consisted of canyons through the mountains where there was rock bottom, and much the remainder of narrow ribbons of valleys where it would only be a few hundred yards from foothills to foothills; a condition of country showing that comparatively little of the region was like that above El Paso toward San Marcial; and the conditions which there obtained were totally unlike those above as to irrigation and waste by means of irrigation or by overflow or seepage.

It will be remembered that the river bed between San Marcial and El Paso is alluvial deposit, silt left over from the floods, hence no reason for Finding VIII can be found. McMahon's statement, that he went down the river and on a falling flow had water to last him for twenty-one days to the mouth of the Concho, disposed of all the claims of such enormous loss between El Paso and the Concho. In 1897 we found in the river at El Paso 1,370,000 acre-feet. In

1891, 1,943,000. During that last-mentioned year enough water passed El Paso to make a reservoir the size of the District of Columbia, 100 square miles in extent, 30 feet deep. There was enough water to have covered the State of Delaware  $1\frac{1}{2}$  feet deep in 1891 and 1 foot deep in 1897. This water was not a whole year in flowing down, but only three or four months—the major portion of it in sixty days, according to the tables—and it passed down where a  $3\frac{1}{2}$ -foot depth, only carrying a few hundred second-feet, which would only fill a small channel in the bed of the river (Rec., p. 577), carried a man through for twenty-one days and was good at the ending. It would require a yawning chasm that would swallow up for good and all a water flow something like that at Niagara Falls to have fulfilled the conditions supposed by the learned court in Finding VIII. In truth, then, there was no evidence to support the Finding VII, and it follows that the court's other suppositions depending upon it fell with it.

### III.

The third matter for consideration is Finding VIII of the court, covered by Assignment II, as to the character and bed of the stream and loss of water southerly from El Paso, Tex.

Finding VIII is as follows:

While there are no measurements from which the percentage of loss by evaporation from the volume of water after the same passes El Paso, Tex., can be definitely determined, yet the general character of the bed, banks, formation, and

soil is shown to be the same general character as that portion of such stream lying between San Marcial and El Paso, where such large losses in volume have been accurately determined, and that for a distance of 400 miles below El Paso, Tex., measured by the sinuosities of the river, to Presidio del Norte, such seepage and evaporation continue to diminish the volume of such water.

We take it for granted that where the term "evaporation" is first used in this finding the court intended to say "seepage and evaporation," and we reach this conclusion from the words "such seepage and evaporation" in next to the last line of the finding.

Our position is that the trial court, in assuming the character and bed of the stream below El Paso to be the same as that between San Marcial and El Paso, was entirely wrong, and really decided against the testimony given in behalf of both plaintiffs and defendants. The testimony in the case clearly shows that from San Marcial to El Paso there are no mountains, and only a few hilly banks, even along the river, but on the contrary, the river is bounded by valleys nearly the entire distance, has a bed composed of alluvial deposit also nearly the entire distance, and has exceedingly low banks, subject to easy overflow, especially in time of flood, the only place noted where there are anything like rocks and hills coming close to the river banks being in the immediate vicinity of Elephant Butte, where the plaintiffs' proposed dam was to be located. The defendants advertised this fact in

the first instance in their prospectus, in which they stated that the only suitable place for a dam and reservoir in lower New Mexico was this same Elephant Butte. They say: "The vendor company has secured under United States Federal law the only possible reservoir site in southern New Mexico" (Rec., 47). Now, this was between San Marcial and El Paso. The testimony in regard to irrigation and everything of that nature confirms the fact that this is entirely a valley region. There is absolutely no testimony to the contrary to be anywhere found, and the testimony of Engineer Follett upon this subject is not only clear but undisputed.

We quote from the record, page 361, the description of Engineer Follett, who was thoroughly acquainted with this stream, upon this subject:

That extends to San Marcial, some 150 miles along the axis of the river's course, not measuring the sinuosities. Then it passes around the Jornada del Muerto, which abuts on the river at San Marcial, and the river enters, well, we would call it a canyon. But there are little valleys lying along the foothills which come in and open up again. There are several little valleys down around there. At Elephant Butte, which is about halfway down, it is in a canyon, and then a few miles below Elephant Butte it widens out again and there is quite a valley; a good many people living there, and some irrigation near Rincon and Seldon. Then in between Rincon and Fort Seldon it is again a canyon, but all the way now after you leave

the White Rock Canyon above Albuquerque it is a sandy bed, with the exception of—I only know one place where there is rock that crosses the river; that is, to the best of my recollection, about 10 miles, or 15, from Elephant Butte there. There is a rock reef that crosses the river, and the river just flows over the rock. That is the only place that I know of. All the rest of the way it is a sandy bed or alluvial. From, say, Fort Seldon, this immense valley begins and extends to possibly the end of the valley below El Paso; all of the way it is the same kind of a bed, and below El Paso, as far as I have seen, it is the same way.

Question. About how far is that?

Answer. About 15 or 20—25 miles, perhaps, by the axis of the valley, that I have been down in the valley of the river, with banks of about—well, from 4 to 6 feet high, excepting occasionally where there is some high ground abuts out into the river, where it may be 12 feet high.

The testimony in this case shows with equal clearness by contrast how far wrong the trial court went in Finding VIII, as the character of the stream between El Paso and the mouth of the Concho at Presidio del Norte. The only direct evidence in the case is that to be found in the record from page 615 to page 620, both inclusive, but it is of the most satisfactory character. It was offered by the defendants themselves and read into the record by them, although, strictly speaking, it was of such of public character that it

came within the rule which would have permitted it to be used by merely reading, without putting it into the record. This evidence consists of extracts from the report of Maj. William Emory, of the United States and Mexican Boundary Survey, which report was made to the War Department about 1850, was published under the authority of Congress, and is highly considered for its general reliability. It is frequently referred to by the professional witnesses in this case, particularly Mr. Follett.

We take the liberty of quoting upon this point portions of such report.

We now retrace our steps to detail more particularly the course of the Rio Grande, especially in its connection with the extensive canyons by which its course is marked above and below Presidio del Norte. In these we gain insight into the geological structure of a large and interesting scope of country, also connected with scenery unsurpassed for singularity and grandeur.

About 70 miles below El Paso the mountains on either side of the valley converge and present a lofty barrier in the direct course of the Rio Grande. Through these the river makes its way by deeply cut chasms, exposing the geological formation and structure in the sectional faces presented by its precipitous walls.

We also see in this connection the lower limits of that extensive aqueous deposit, forming what may be termed the great El Paso Basin, which, by subsequent drainage in the progressive deepening of the bed of the Rio

Grande, has brought to view the various terraced elevations marked along the course of the present valley in table-land bluffs and extensive gravelly plateaus.

In fact, in our progress down the river we shall have constant occasion to notice the connection between these canyons, as marking the limits of upper basins of deposit. Thus the general course of the river represents a continuous series, in descending steps, of basins more or less extensive, then a canyon, forming, as we may say, the spout of the basin, which again opens on a basin of lower level.

This simple statement embodies the great principle of formation that characterizes all this district, and gives to its topography a significance at once clear and instructive.

It is in these barriers, then—these mountain dams—that the character of the valley, as a whole, can be best studied, and the chasm by which the river pierces them furnish the true key to their geological development.

That portion of the Rio Grande thus marked by canyons and basins, extending from the first obstruction 70 miles below El Paso to Presidio del Norte, did not come under my own personal examination.

The river here follows a general southeast course, making its way through strata of disturbed carboniferous limestone, having usually a dip to the southwest. The river course thus cutting the strata unequally, we should naturally expect not so much of a continuous canyon as an unequal development of rock on either side, presenting, it may be, bold and abrupt



faces on the one side and comparatively low on its opposite, thus affording the means of following near the river banks by crossing from one side of the stream to the other. This, indeed, seems to have been the course pursued by the surveying party with their pack trains, who were thus enabled to keep up a connection with the line of survey.

We should also expect, as another consequence of this irregularity of feature in the rock exposure, not such a marked contraction of the river bed and channel as we should be more apt to find in the case of horizontal strata of equal development; rapids would be less apt to form, and lines of beach would be more frequent. Farther on, in encountering the exposures of igneous rocks, these features would vary, and here would be the points characterized by greater obstruction to the regular course of the river, and also rendering a passage along its banks more impracticable.

It appears that Major Emory had an assistant, Mr. Von Hippel, who traversed this particular territory and made a report which Emory embodies in his, and from that we further quote:

For a description of the valley of the river from the Presidio del Norte to the canyon, where the San Antonio and El Paso road first strikes it, I give an extract from the official report of Assistant Von Hippel:

"From Presidio del Norte to Vado de Piedras, a distance of 24 miles, the valley of the Rio Bravo has a course from southeast to northwest, and is from 3 to 4 miles in width. It is a

good grazing country and the soil is of easy cultivation. This valley is inclosed by hills on the American side, and on the Mexican side by a large mountain range.

"Vado de Piedras is a Mexican military colony, containing some 300 persons. Here are large cultivated fields, which are watered by acequias, and yield abundant crops of wheat and corn. The place takes its name from the rock ford of the river opposite the town, which is quite shallow at the ordinary stage of the water.

"Here the river takes a course nearly north, through a valley, varying in width from one-half to  $1\frac{1}{2}$  miles, till it comes to Pilares, 45 miles from Vado de Piedras. Pilares was once a military colony, and, from abundant signs still visible, the smelting of silver ore was carried on extensively. It has long been deserted, and I could not learn from what mountains in the vicinity the ore was procured. The river continues the same general course, through a valley bounded by high ridges of mountains, for some 18 miles, when it enters a large canyon 6 miles in length. On emerging from this it changes its course to northwest, through an open valley of 8 miles in length, the bearing of which is north and south.

"It now passes between low hills for some 8 miles, when it breaks through an immense mountain range, where its banks are of perpendicular rock, of from 400 to 500 feet in height.

In this canyon are many rapids, and one fall of some 6 feet, making navigation impossible, except at a very high stage of water.

"One mile above the canyon on the American side is a level plateau of rock about one-half mile square, near the center of which are two warm springs, their cavities having a funnel shape, and of great depth. The temperature of the water in them is about 180 degrees Fahrenheit. From these springs the river continues a northwest course through a narrow valley for 24 miles to the canyon where the San Antonio road leaves it."

From the canyon up to El Paso, a distance of 80 or 90 miles, the valley of the river will average from 6 to 10 miles in width, and is almost everywhere within the water level of the river capable of cultivation. On the American side, however, there is no settlement until within a few miles of San Elizario, a distance of 60 miles from the canyon.

From these extracts it will appear that from the bottom of the El Paso Valley, which extends some miles below El Paso, the course traversed by the river negatives in the strongest manner possible the statements contained in Finding VIII of the court. Nothing could be more impossible than the seepage of water in considerable quantities while passing over a bed running directly through a mountain region like that mentioned. But we are not confined to the documentary evidence contained in Major Emory's report above quoted, but are at liberty to refer to the testimony of the witness McMahan, who navigated this portion of the river in his winter trip from El Paso to Presidio del Norte, the mouth of the Concho River.

In his cross-examination, beginning at page 513, this witness, perhaps without intending it, really sustained in substance and effect the statements contained in Major Emory's report, indicating all through such cross-examination a succession of canyons and rapids, rock bottom and gravelly bottom, high banks, narrow valleys, and every indication that the territory was different from that above El Paso toward the San Marcial station, and his story of having traveled through that long section 400 miles on a falling flow of only  $3\frac{1}{2}$  feet at starting, and being twenty-one days en route, is fully shown by the witness Follett, in his testimony when recalled upon rebuttal (Rec., p. 577, and following), in such a light as to place this territory, so far as seepage and evaporation are concerned, in exactly the opposite condition from that which the court so erroneously found. As before stated, it became necessary for the purposes of the defendants in this case to have this water all, or substantially all, lost before it reached the mouth of the Concho, because if the Concho, as they sought to make it appear, was a perennial stream, its perennial flow would keep the river bed filled to the extent of a water table, so that little seepage of the water flowing down from El Paso could result, and this especially after the coming in of the Pecos, also shown by the defendants to be a perennial stream, and which of course tended to sustain the water table. But taking the court at its word in Finding VIII, and stretching this extent of losing territory all the distance along the river to the head of navigation, let us see how far contrary to the evidence in the case as to such losing

character of the stream the court's finding went. We may first of all take the testimony of the witness Sutton, one of the most intelligent and clear-headed witnesses who gave testimony, and we see from it that from the head of navigation northerly, to and beyond the mouth of the Pecos, every characteristic of the stream went to negative the finding of the court.

Mr. Engineer Follett (Rec., p. 330 et seq.; Rec., p. 361) corroborates these statements from Eagle Pass down to the head of navigation in a very comprehensive manner.

The same witness, McMahan, who traversed the stream between El Paso and Presidio, in his testimony as to that portion of it which lay below Presidio to Eagle Pass, further sustained our contention and contradicted the finding of the court. This he did in his description of his trips from Presidio down the river. (Rec., p. 485 and following.)

Then came the witness Ware, who passed through the same region in 1899 with McMahan and Professor Hill. (Rec., p. 458 and following.)

The testimony of Mr. Haines, the collector of customs at Laredo, was to the effect that during the flood of 1897 at El Paso there was a rise in the river about three weeks after, which kept up for a long period. Laredo, it will be remembered, is almost down to the head of navigation, only 107 miles above Rio Grande City. (Rec., p. 238.) With this enormous rise of 11 feet on a river of the great width of the Rio Grande at Laredo, it was strange that the court would attempt to

find that the water flowing past El Paso did not reach the head of navigation, but was possibly dissipated by seepage after flowing past the lowest measuring station at El Paso. Except in matter of opinion purely there was no evidence tending to show such a state of affairs as is of necessity inferable from Finding VIII. The whole trend of the case is against the correctness of such finding, and it should fall with the preceding finding, VII, as well as with others, which will be treated of hereafter.

#### IV.

The next matter to be discussed is Finding IX, covered by assignment III. This assignment is as follows:

Between Elephant Butte, the point where defendants proposed to divert the waters of such stream, and Presidio del Norte, a distance of 640 miles by the sinuosities of the stream, there are no living tributaries to said Rio Grande, and the waters of such stream are not reenforced substantially between such points by any regular flow of tributaries, and there is no perennial flow of the Rio Grande at Presidio del Norte.

By using the word "regular" as a saving clause this finding is made literally true and correct, but in the sense intended to be conveyed and in the connection in which the finding is placed it is strictly wrong and altogether misleading. We therefore assert that it is not supported by any evidence in the case, but is exactly contrary to the evidence. There could only be

one purpose in this finding, and that is to dispel all water of the upper Rio Grande before it reaches the mouth of the Concho, or at least so much of it that at that point no appreciable quantity would be left to find its way down to the head of navigation. Now, the real truth is that the Government did not attempt to show that any tributary to the Rio Grande is perennial. It remained for the defendants in the case to make that attempt, and this they did only in the case of two streams, the Concho (Mexican) and Pecos (Texan). It incidentally did appear from certain of the testimony in the case that the San Juan, a slow, sluggish sort of stream, described by some of the witnesses as an estuary for miles before its confluence with the Rio Grande, was a perennial stream. Of course that was away down near the head of navigation, and no importance was attached to the circumstance by either side. Even the Rio Grande itself is not claimed by the Government to be absolutely perennial above the mouth of the Concho. So, of course, by using the word "regular" the court made a literally correct finding, but in a way intended to convey the impression to any appellate court that the Rio Grande had no tributaries during its flow from San Marcial to Persidio, 640 miles. Such a statement unchallenged would naturally attract the attention of anyone and be regarded as a strong and a very singular circumstance. Let us show how far the court went wide of the mark, from the evidence—not the evidence of the Government, but the evidence of

the defendants' witnessess themselves, unchallenged, not disputed, indeed accepted as verity by all concerned. At first we will call attention to the testimony of George Lynch, a stock raiser in the region immediately below Elephant Butte, the place where defendants' dam was to be located. (Rec., p. 521 and following.) As the testimony itself would occupy too much space, we give its substance and effect.

Witness said he was familiar with the stream emptying into the Rio Grande at or below Elephant Butte, and mentioned the same as the Cochillo, Negro Creek, the Palomas Creek, the Las Animas Creek, Las Perches Creek, the Tierra Blanca Creek, and the Jaralosa, the latter being the last coming down the Rio Grande and emptying in about 32 miles below Elephant Butte, except during the rainy season; except in flood time they do not run any water into the river, the same having been their character since 1876. Witness did not know of any others emptying into the Rio Grande between the Jaralosa and El Paso. As to the Jaralosa, he could not state how much water it would flow in any given time, but it was perhaps 50 yards wide, and headed up in the Black Range about 30 or 40 miles from its mouth. The Tierra Blanca was about the same length and width. The next was the Trujillo, about the same length and width, and the same was true of the Perches. The Las Animas was nearest up to Elephant Butte. It had water in it up above in the canyon, but that water did not empty into the Rio Grande except in flood time. It was rather longer than



the other, being perhaps 50 miles, and took its head in the Black Range. As to the Cuchillo Negro, witness could not say as to whether it entered above or below Elephant Butte. But we add that this circumstance had no importance, since it was considerably below San Marcial. Now, this was within a distance of 30 or 40 miles alone, and we selected it as one of these cases in which the court was singularly forgetful of the testimony in the case, testimony that was received as practically correct by both sides and offered by defendants. Now, let us again show the court's forgetfulness of the evidence in the case, out of the mouth of the witness McMahan, who made this celebrated trip, starting Christmas, 1893, and navigating the river for twenty-one days from El Paso to the mouth of the Concho. In referring to his testimony (Rec., 519) we see McMahan speaks of three different streams, one not far from San Antonio, and then another above San Antonio not far from the San Carlos coal mines, which come in from the Mexican side, and still another on the Texas side of the river right at or near San Antonio. It is true that these streams were not important and were the only ones he can recall, but that serves to show how eager the court was to find the Rio Grande dry at the mouth of the Concho. It is simply the fact, as heretofore stated in this brief, that according to the evidence in the case arroyos, which are gulches when they come in from the plain and ravines or fissures when they come in from the mountains, constantly bring in water all the way

from San Marcial to the mouth of the Concho through this distance of 640 miles. It is absolutely absurd to make a finding, therefore, which in effect would mean that there is no rainfall all this distance from Rincon, away above El Paso on the Santa Fe road, clear through to Presidio, far down in the State of Chihuahua in Mexico. To one who has had any observation in and about El Paso, Tex., a well-known city, the center for many leading railroad lines, the absurdity of such a finding is apparent, when rains are well known to occur during the seasons of the year when such things are expected there, lasting for a day or two in duration and giving a mean annual rainfall of something like 14 or 15 inches. Often this rain comes in heavy showers, and a goodly proportion of it comes into these arroyos and reenforces the Rio Grande. Had an attempt been made to carefully examine the line of the stream below where it was testified to by the witness Lynch, or above where it was testified to by McMahan, perhaps many such streams having local names, but not being laid down on the maps, might have been found there in that distance.

We repeat that the purpose of the finding is plain, but it will not withstand examination, and only tends to make more apparent the mistakes and errors of both the trial and appellate court of New Mexico.

## V.

We now come to Finding X, Assignment of Error IV, which comprehends the magnifying of the Rio Concho and minimizing the Rio Grande at their confluence at

the important objective point in this case outside of El Paso, viz, Presidio del Norte. It became necessary to do this in order to establish the theory of the defendants, which, stated in substance, was and is this: That there are two practically distinct rivers which we commonly know as a whole and call the Rio Grande. The one, taking its source in the mountains of southern Colorado, practically loses itself between El Paso and Presidio del Norte, never to be found again. The other, taking its rise in Mexico and flowing down the bed of what we know as the Concho River, and, coming into the dry bed called the Rio Grande at Presidio, thence finds its way to the Gulf under the name of Rio Grande. Let us repeat this finding:

The first perennial tributary of the Rio Grande below Elephant Butte is the Concho, which comes into the Rio Grande at Presidio del Norte. The Concho is a perennial stream, rising in the mountains of northern Mexico, and flowing several hundred miles northerly into the Rio Grande. In seasons it is a perennial stream of great magnitude, and at all times carries a considerable quantity of water. A cross section of the Rio Grande near and just below where the Concho joins it shows an area at least twenty-five times as great as an area of a cross section of the Rio Grande just above the mouth of the Concho measured to the highest water mark known, so far as disclosed by the evidence, in thirty-three years, the carrying capacity of the lower cross section being variously estimated at from sixteen to twenty-five times as great as the upper cross section.

The court in this finding, therefore, for all practical purposes, held what the defendants claim, viz, that the Rio Grande loses itself between El Paso and Presidio. Of course the court admits in effect that a small portion of water sometimes finds its way as far down as Presidio, but as the volume is so slight as not to assist navigation still farther below, of course it is not important what becomes of the waters at Elephant Butte. It therefore becomes quite a serious matter in this case as to what importance can be attached to Finding X, in view of the theories of defendants and those courts, as above stated.

Let us give a history of this so-called cross section: Just upon the eve of the trial of the case, one Reed, in the employ of an irrigation company in New Mexico (Rec., p. 555), and incidentally under salary from the United States Government, Irrigation Division, Agricultural Department (Rec., p. 611), was sent by defendants down to this point of Presidio to work up the case for them; all of which appears from the testimony of himself. (Rec., p. 611.) He went to Presidio and took a cross section of the river below the mouth of the Concho (Rec., p. 555), the same lower cross section which, as we shall later on see, was thrown into the greatest doubt when submitted to the consideration of competent engineers, but which the court dignifies by mentioning in this finding. (Rec., p. 14.) He then proceeded above the mouth of the Concho, in the bed of the Rio Grande, and there made a cross section upon pure hearsay, as to the data from which he procured its important features.

When asked why he did not go above the mouth of the Concho and make a cross section there, which might have demonstrated the truth or falsity of this finding, he stated that he did begin to do so, but found that he would not have time to complete it, and therefore gave it up; all of which appears from his testimony in the case. (Rec., p. 610.) Certainly the latter and more important part of this finding about the cross sections has no legal evidence in the record to support it. The record shows that which was used as a basis for these cross sections to have been the purest and most ridiculous hearsay. It appears that witness Reed arrived at the Presidio one day and left the next (Rec., p. 555); that he went to the place where the lower cross section was taken—that is, the one about 2 miles below the mouth of the Concho; that he had with him one R. C. Daly and three Mexicans, whose names he did not learn; that he then took this lower cross section from the high-water mark as indicated by the rubbish on the bank and as pointed out by Daly. He states that he took a cross section of the highest water made by the Concho, which, of course, would have been after it flowed down in the bed of the Rio Grande from 1 to 2 miles. He says that this high-water mark of the Concho was pointed out to him by Daly and a Mexican who lived there. He then took at the same spot the high-water mark as pointed out by the same parties as being the high water of the Rio Grande; that his measurements showed water in the river that day amounting to 163.3 second-feet. His cross section indicated 566.4 second-feet as being the extent of Rio Grande flow, while the

cross-sectioned area in wetted land (that was the highest high-water mark) was 19,556.7 feet. This last, of course, was the entire high-water mark of the cross section, which it seems he adopted as being composed entirely of Concho water. (Rec., p. 556 and following.)

He then went to the Rio Grande, above the confluence of the Concho with it, and made a cross section there. He had with him the three Mexicans he employed and Mr. Daly. Two of these Mexicans were to carry chain and one to drive. But they represented to him that they had always lived there, and appeared to be familiar with the country. He asked them if the Rio Grande ever got out of its banks, and they said, "No." He then made a cross section. There was no debris or deposit, the banks being quite steep, and he could not tell anything from water marks, so he took a cross section from top to top of the banks, and this indicated 662.25. Here counsel for the Government objected, because of the cross section being founded on hearsay, and the court sustained the objection. Defendants withdrew the witness and called Daly, who stated that he was with Reed when he measured the banks of the Rio Grande above the Concho; that he never heard of the Rio Grande getting out of its bed at that point; that he had never known it to do so; that he had lived about there thirty-three years. On cross-examination he said that the spot where this cross-section was taken was about 1 mile above the Concho; that the water backed up the Rio Grande 6 or 7 miles from the mouth of the Concho.

When asked how he would know the water coming down the Rio Grande from that of the Concho, when both joined and backed up in high water, he admitted that he could not tell. He further repeated that he had not heard of or seen the Rio Grande out of its own banks except when the Concho backed up there, but did not anywhere testify that it did not; and, further, he said that when the water was backed up the Rio Grande he had never been up the latter to see what was coming down from above the point where it had backed up, nor could he tell what was the high-water mark of either stream when their waters intermingled. Upon the basis of that testimony the trial court allowed this upper cross section to be put in evidence, under objection and exception. (Rec., p. 559.)

It will be observed that Daly, while on the stand, did not attempt to verify the cross section taken below the Concho, nor did anyone else, none of the Mexicans having been introduced, so that *it* stood absolutely on hearsay. Yet the court makes a great and special point of these so-called cross sections. We submit again that they were entitled as legal evidence, especially upon such an important point, to no consideration whatever. Only one of the persons furnishing Reed his information (the witness Daly) was present in court, and that witness gave his testimony in a convenient, negative way that told nothing, and admitted his incompetence to furnish any authentic information. (Rec., p. 558.) Take this, in addition to other important matters which will further on appear

in respect to this transaction, coupled with the fact that it was just as necessary for Reed, if he intended to be honest, to take a cross section of the Concho above its mouth as of the Rio Grande, and I think this court will become satisfied how far the trial court and supreme court of New Mexico ran into error.

It further appeared, from the testimony of Reed and Daly, that the Concho goes into the Rio Grande almost at right angles; that in the shoulder or angle below the Concho, and to the right of the Rio Grande coming down, is high land, upon which is situated the village of Ojinaga—Presidio, Mexico, as it is sometimes known on the map—but on the upper side of the Concho, and stretching up the Concho for a long distance, as well as up the westerly side of the Rio Grande, is a large strip of low land, where the banks of both streams are very low, and which is not merely susceptible of overflow for a wide distance, but upon the bushes, shrubs, and small undergrowth with which it was covered bore evidence of flood all over it, which debris did not indicate in what direction the current carried it. This appeared from the testimony of both Daly and Reed on cross-examination. (Rec., pp. 560, 561, 562.)

Reed further admitted that from up the Rio Grande a considerable distance a line might be drawn across this low land to the low banks of the Concho up the stream from its mouth a distance so that the two rivers and this imaginary line would form a triangle (Rec., p. 560). Reed was interrogated on cross-examination



to know if he attempted to continue his upper cross section through and over this territory, and stated that he did not, because of the undergrowth upon it; but stated that it would have been a very long cross section, half a mile long at least, if not more (Rec., pp. 561, 562).

It would appear, then, that water coming down in flood from either the Concho or the Rio Grande would be narrowed up by the high banks on the American side and the bluff at Ojinaga, so as probably to at once overspread this low territory. Daly admitted that it was so low that his son lost his life in trying to save some property there at one time in flood (Rec., p. 564). No witness attempted to testify that the Rio Grande did not overspread this bank. The utmost that occurred was Daly's statement that he never heard of its doing so, which, of course, was very convenient, but not satisfactory to the mind anxious to ascertain the truth. When, however, this remarkable cross-section episode is taken into account, in connection with the fact that this man Reed, while under the employment of the United States as a gatherer of statistics on the Pecos River, went down there to work up a case for the defendants against the United States, and when his cross sections were further shown up after a night's study by Mr. Follett, who was a real engineer, we can further see how far the court seemed to go astray, because when the upper cross section had been examined, it was found that, even small as it was, he had placed it at only three-quarters of what it actually showed to have been the

capacity of these low banks of the everyday channel of the Rio Grande (Rec., p. 579). This he admitted, but claimed that it was a mere error in computation (Rec., p. 609). And again, when his lower cross section came to be analyzed and he was further cross-examined concerning the same, it was shown easily to have been overdrawn to the extent of 33 per cent, and of course to be entirely uncertain as to the remainder (Rec., pp. 579-580). And yet, with all these facts plainly bearing upon it, in order to get rid of that water which came downstream from El Paso the court was willing to make a finding of this trash. When later on it will appear that the court was unwilling, on the other hand, to make findings authenticated by the highest authority and published by the United States long before this suit was thought of, and having a strong, direct, and, as it seems to us, most convincing bearing upon the questions at issue in this case, we submit that by contrast those courts would seem to have been somewhat influenced by and in error from that prejudice which sometimes comes from strong local feeling and grows out of local interests.

## VI.

The sixth matter for consideration comprehends Finding XI and Assignment of Error V. This finding is as follows:

It has only been shown by the evidence that the waters in the Rio Grande bed passed Presidio del Norte, the mouth of the Concho, in considerable quantities upon one occasion—that

is, during the month of May, 1897; but it is fairly inferable from the testimony that such waters have so passed such point on other occasions in such quantities. No evidence has been offered as to the amount then so passing the mouth of the Concho in the Rio Grande bed except that of one witness to the effect that the height of the same over a ford some distance below the mouth of the Concho, the dimensions of the river at that point not being shown, was increased about three feet, and the duration of its passage at such height was for about eight or ten days, and except some estimates, based upon the surface area of the cross section referred to, showing the flow to be 3,250 cubic feet per second. And I find that the evidence fails to show that at the period mentioned the water so flowing by the mouth of the Concho affected the height of the river at Laredo, Tex., to any considerable extent.

Let us analyze this finding: The Government had no witnesses—had no idea that it was necessary to have any—about matters at Presidio. The only witness, therefore, who could testify on the subject was this man Daly, whom the defense produced. His testimony speaks too plainly for itself. The width and character of this ford is admitted to be unknown by the court, and we will quote verbatim the incoherent statement upon the basis of which the court found that the river only rose three feet. (Rec., p. 499.) Judge Fall, of the defense, was examining:

Question. And at the usual flow of the Concho and the Rio Grande you could cross this river,

and after this flood came down the river it would have come up to the bottom of a buggy, as I understand it?

Answer. After the river had gone down, then it would be to the top of the carriage or ambulance. But after it had gone again it might come up to the bottom, but not high after it went down.

Question. Not very high when it went down?

Answer. About enough to cover the top of an ordinary ambulance.

Question. That was all the water that reached there?

Answer. That is all the water.

On cross-examination this result was not changed, except that it was made to appear that the river at that point was about 2,800 feet wide, and that the depth was 4 to 4½ feet instead of 3 feet, as the court finds. (Rec., p. 502.) Of course, a little circumstance by way of deviation in the finding from the testimony like 1 to 1½ feet when the river was 2,800 feet wide need not bother the court. True, it would not make a difference in the result of more than 2,800 to 3,500 second-feet, or 5,600 to 7,000 acre-feet per day, but the difference is trifling. The fact is that the testimony, like the witness, was shambling, rambling, incoherent, unreliable, and unworthy of the attention of any court. But here the court goes out of its way to find that this flow did not at the time of this flood affect the height of the river at Laredo, Tex., to any appreciable extent. Unfortunately for this last but important finding of the court, there was a witness on

that very point, Mr. James J. Haynes, the United States collector of customs for the down river and western Gulf coast, district of Corpus Christi; a man whose high character and absolute reliability was not only manifest from his official position but from all his testimony and bearing in the case, and this is what he said verbatim (Rec., p. 238):

Answer. Haven't kept any track of the rise, except that we occasionally hear of rises from the newspapers. Have never seen flood water at the river at *El Paso* to amount to anything.

Question. Did you observe anything about the flood after you got newspaper reports? Anything of that kind I wish you to say.

Answer. Yes; we would get notices of a rise at El Paso, and in a couple of weeks—fifteen days, perhaps longer—we would feel a rise at Laredo.

Question. How great were these rises, from—I mean, after you got track of the rises at El Paso?

Answer. Well, it depended upon the amount of water that would come down from here (meaning Las Cruces, N. Mex., 40 miles north from El Paso), and also the additional amount furnished by other streams.

Question. Well, describe them, describe the rises, what you traced from the reports of newspapers as coming down from the upper Rio Grande past El Paso.

Answer. The last I remember, and I remember it because I looked over the file of the newspapers, there was a reported rise at El Paso in

May, 1897, and we had a 9 foot-11 foot raise at Laredo in June.

Question. How many days after?

Answer. Three weeks.

Question. Was it 11 feet all the while or 11 feet at the highest, do you mean to say?

Answer. At the height of a raise as taken from the newspaper files.

From this it will be seen that the court had just the opposite impression from that which would have been received from the testimony of Mr. Haynes. The river at Laredo is very broad, and, because broad and consequently very shallow, it is where the International Railroad bridge crosses.

## VII.

The seventh subject embraces Finding XVII covered by Assignment VI. This finding reads as follows:

The character of the formation in the basins or valleys of the Rio Grande at the only point where the same has been sounded to any great depth—that is, by the boundary commission at El Paso, Tex.—show the depth of sand and gravel to be at least 60 feet, and I can see no reason why the other valleys and basins along the course of the Rio Grande should not show the same formation to at least the same depth, the surface indications and appearances being substantially the same throughout its length.

In this finding, which seems upon its face to be very simple and inoffensive, the court seized upon a single

circumstance, apparently of slight importance in connection with the case and only incidentally referred to by Engineer Follett in his testimony respecting the location of the El Paso gauging station (Rec., pp. 589-601), to build up an argument which, being followed out to its mathematical results, would lead to great conclusion. These soundings for the purpose of finding a foundation for a dam probably covered one-quarter of a mile in distance up and down the stream, but from them the court seizes upon an opportunity to lose all the water that would soak into the earth for a depth of 60 feet from the source to the mouth of the river, a distance measured by the sinuosities of the stream of from 2,500 to 3,000 miles.

To suppose for an instant because the strata of earth were of certain characteristics to a depth of 60 feet in one place they would hold to the same combination over such an enormous space as the length of the Rio Grande, is staggering to the ordinary mind. Nothing is better understood by all classes of people interested in such matters, from the most ordinary well-digger to the most advanced mining engineer or geologist, than that the combinations of strata under the surface of the earth are as capable of infinite variety as the alphabet of Cadmus, or the numerals with which we begin mathematics in early childhood. This finding only serves to reiterate our original proposition, that the court was straining to lose the water which flowed below El Paso.

## VIII.

The next important topic is embraced in Assignment of Error XIV in which we claim that the court erred in refusing to find the plaintiff's request for Findings I, II, and XXI. These findings are as follows:

I. That the increased use of water for irrigation purposes in the State of Colorado per annum during the last nineteen years, has diminished the mean flow of the Rio Grande at El Paso at least 1,000 second feet per day for one hundred days during the irrigation season, or 200,000 acre feet in all, during the year.

II. That since the commencement and use of water for irrigation in the State of Colorado the evidence in the case shows a steady decline in the navigable capacity of the Rio Grande from Rio Grande City to Brownsville, both in the State of Texas, so that now the said river for a considerable portion of the year is not susceptible of navigation and is almost at all times attended with much difficulty.

XXI. The court further finds, as a matter of fact, that the construction of the dam proposed to be constructed by the defendant corporation at Elephant Butte, a point about 125 miles above El Paso, would substantially impair the navigability of the Rio Grande at the point where it is now navigable.

It is not necessary to give special attention to XXI of plaintiff's request as the argument throughout the case bears, more or less directly, upon that, but it is highly important to discuss the court's refusal to find as requested in I and II. Here was the entire of the



report to Congress of Engineer Follett, which, together with his tables of measurement accompanying such report, comprised the greater portion of the appendix to the record in this court. They were all in evidence before the trial court, they were accepted on all hands as true and correct, no attempt was made to controvert them anywhere by any witness or any scrap of written, pictured, or tabulated evidence. They showed beyond any possibility of question the facts embraced in these two requests. A great number of witnesses on both sides had testified as to the decline of the lower river at the same time when this irrigation in Colorado and New Mexico was up growing, and it was one of the leading theories of the Government in this case, that the diversion of waters from the upper river for this irrigation was exactly the cause for such decline and it was known to the court that an appeal would be taken from its decision and that a failure to make such finding in some form, under the practice in case of appeals from the Territorial courts to this court, would cut off this court from a knowledge of such evidence unless its action was challenged; and yet the findings did not do the Government the kindness to show that such evidence was introduced and such a theory advanced upon its behalf, although the court might have done so and given its reasons, if any, why such theory was not satisfactory. We submit that, all the circumstances taken together, this refusal of the court adds great weight to the errors complained of in our appeal.

## IX.

The last subjects for consideration are embraced in Findings XXVIII, XXIX, and a portion of XXX, and are covered by Assignments VII, VIII, and IX. As to Assignment IX, it simply follows from all argument we have thus far attempted to make.

As to Assignment VIII, it applies substantially to these words in Finding XXX:

But that they reach that point in quantities sufficient and in such form as to substantially add to the navigable capacity of the stream is not satisfactorily established by the evidence, nor can such a conclusion be satisfactorily deduced therefrom.

In this finding the court admits that in high and protracted floods water from El Paso reached navigation in considerable quantities. It will remain for this court to determine two questions: First, whether the Government had a proper and reasonable chance to show what the trial court claimed to be wanting; and, second, whether, even with the chance it had, the Government did not supply the proof which that court claimed it could not find.

Now, continuing to Finding XXVII: In subdivision 1 that court held that by a comparison of the tables of measurements between San Marcial and El Paso there was no flattening or tailing out of the flood. Why, we ask, should the court always select for comparison the table between San Marcial and El Paso for that one year only? The evidence was before the court, as we have before seen, showing comparative

measurements of five different stations. They are not before this court as they were before that, because in some way, which counsel on either side do not understand, none of the exhibits in the case were returned and printed with the record, and this omission was not discovered until too late a date to give opportunity for obtaining and having them printed with the record, without delaying this hearing in this court, which neither party desired. But this finding indicates that the local court did not attempt to compare anything but these two stations, hence we may fairly presume that the court made this assertion without a comparison of all the stations to ascertain whether there was or was not such a tailing out of the floods. But we submit in this connection that the fact that there were no canyons worthy of mention between San Marcial and El Paso, while all the testimony shows that the river course below El Paso abounded with them, and that they would have a natural tendency to so prolong these floods, destroys the conclusion there reached by the courts and shows its error as a matter of common observation and common sense.

As to subdivision 2, it amounts to a mere supposition, and the supposition itself is plainly erroneous, and for this excellent reason, that after a short period of flow to the extent mentioned, of 2,000 or 3,000 second feet, the demands of seepage would be satisfied, because the river bed would have then become a water table, and from that time on loss would only occur from evaporation or artificial diversion, as by irrigation,

manufacturing, or mechanical uses, and of these there were practically none below El Paso; and thus that continuous flow would proceed to navigation and constantly assist to keep the volume of navigable water at that "dead low stage" described by the witness Thornham, who was captain of one of the steamers, as being the most desirable stage for navigation.

As to subdivision 3, relative to loss between El Paso and Presidio being as great as between San Marcial and El Paso, we have already considered it thoroughly enough, as we hope, to make manifest its error.

In subdivision 4 the court wrestles with the problem of the water table, and proceeds, for want of either evidence or reason, to assume an arbitrary 20 per cent of loss by seepage and evaporation. Twenty per cent of such a flood as that at El Paso of 1891 would constitute nearly 500,000 acre feet, and in the flood of 1897, 250,000 acre feet. Thus we may see how easy it is to destroy a flood on paper by dictation to a stenographer. By such easy processes a court may dispose of a case without mental or physical effort.

As to subdivision 5, in a distance of 850 miles by the general course of the stream on the map and probably nearly double that distance by the sinuosities of the stream, the court supposes that the El Paso water would reach Rio Grande City, if at all, in from fifteen to twenty-five days. In the three hundred and sixty hours, constituting fifteen days, to the six hundred hours, constituting twenty-five days, the court would have this water go down there. If there are 1,700 miles of actual distance, his faster estimate would have

the water flowing about  $4\frac{2}{3}$  miles per hour. At the slower rate it would flow nearly 3 miles per hour. Considering all the canyons that stood in the way of its progress to hold it back, and its necessarily slow course on the levels, this court must judge of that court's accuracy, experience, and observation of the flow of streams.

In subdivision 6, which is the final one of the court, it proceeds to reason out by means of a self-constructed table what the El Paso water would do for navigation. Even from this table the court makes a magnificent showing for the El Paso water in the reenforcement of navigation, and this after his arbitrary assumptions of loss, erroneous as they are in the highest degree, are all taken out. It never has been claimed that the El Paso water alone would furnish all the flow necessary for navigation. What we do claim is that, added to the perennial flow of the Pecos, and the Concho, and the torrential flow of the streams, arroyos, and ravines in that great country southerly from El Paso, there is enough water in ordinary seasons in their composite flow to make navigation much of the year a possibility. What we claim is that the diversion of large quantities of water that had never before been used for such purpose, which water had been taken out from somewhere in the eighties down to the present time in Colorado and New Mexico, had seriously impaired navigation where it had been good in earlier years. Also that any further diminution by these defendants would have a serious tendency to impair this navigation further, and that every acre-foot impounded and diverted

by the proposed dam for the proposed reservoir at Elephant Butte would be at the cost of navigation in water that can not safely be dispensed with.

The question of what will be done as to the water already taken out for irrigation in Colorado and New Mexico remains with Congress, which body has control over these waters, the courts only being empowered to carry out the will of Congress when that shall have been expressed. It may be that the United States for a part of the way and the two Republics for the remainder may see fit to improve navigation by constructing levees all along the banks of this stream, as in case of other streams, and save that waste by overflow of the torrential floods, which is here undoubtedly so common and so wasteful of an element precious in all that region.

In the progress of new methods, new appliances, and new uses all this water may be needed for purposes not now dreamed of, and we submit that it is a practical consideration for the present hour whether by yielding to the temporary exigencies and urgencies if a few hundred thousand acres sought by a single corporation to be controlled and devoted to agriculture for the enrichment of its stockholders, the Governments and citizens of two nations shall be deprived of that ownership and control of this stream that may hereafter come to be of inestimable value. At any rate, the executive branch of this Government considers that this should not be done upon the decisions of the courts of New Mexico, which has so large an interest

in obtaining these waters to the exclusion of others farther down the stream, but that if it is to be done it shall only be in obedience to the decree of this, the highest court in the land.

In conclusion we say that in one view of the case there is enough of evidence as it is brought to this court, in connection with the findings complained of in the assignments of error, to warrant a reversal of the judgment and a mandate for perpetual injunction against defendants.

But if this court has doubts of the propriety of going to that extent, we urge that the case should at least be sent back to the lower courts to enable the United States to carry out its purpose of showing the actual condition of the river below El Paso to a mathematical demonstration. Measures to this end were commenced at once upon the refusal of the trial court to grant a rehearing; and if such rehearing be now ordered by this court, no great loss of time need occur in order to make plain that which the courts of New Mexico would not permit to be demonstrated. Under the powers of this court (701 Rev. Stats.) the right to do this is unquestionable, and it is exactly what this court seems to have intended by its former mandate. It would be in pursuance of the doctrine of this court set forth in the Little Miami Railroad case (108 U. S., 277-280), and would undoubtedly secure substantial justice to all parties.

MARSDEN C. BURCH,

*Of Counsel.*